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ABSTRACT

This document records the oral and written testimony given at a Congressional hearing on nutrition research and education as carried out by the U.S. Department of Agriculture. Witnesses included officials from the Department, professors and administrators from various university nutrition programs, and medical doctors. Testimony stressed the expanding role that nutrition is playing and should play in the improvement of the health of Americans. More nutrition research was advocated, as well as more use of such research on the local level, such as through the Cooperative Extension Service and training for local medical practitioners. Increasing nutrition knowledge and action by the public could substantially lower health care costs, and testimony supported Department of Agriculture programs such as Women, Infants, and Children (WIC) that aim to prevent low birth weight babies. (KC)

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REVIEW OF NUTRITION RESEARCH AND EDUCATION ACTIVITIES

ED 367 910

HEARING

BEFORE THE

SUBCOMMITTEE ON DEPARTMENT OPERATIONS
AND NUTRITION

OF THE

COMMITTEE ON AGRICULTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

JULY 15, 1993

Serial No. 103–28

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Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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REVIEW OF NUTRITION RESEARCH AND EDUCATION ACTIVITIES

THURSDAY, JULY 15, 1993

House of Representatives,
Subcommittee on Department
Operations and Nutrition,
Committee on Agriculture,
Washington, DC.

The subcommittee met, pursuant to call, at 10:30 a.m., in room 1300, Longworth House Office Building, Hon. Charles W. Stenholm (chairman of the subcommittee) presiding.

Present: Representatives Dooley, English, Volkmer, Rose, Lambert, Smith, Gunderson, and Allard.

Also present: Representative Minge, member of the committee.

Staff present: Julia M. Paradis, assistant counsel; Glenda L. Temple, clerk; James A. Davis, Merv Yetley, Pete Thomson, and Lynn Gallagher.

OPENING STATEMENT OF HON. CHARLES W. STENHOLM, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. Stenholm. This public hearing of the Subcommittee on Department Operations and Nutrition will now come to order.

Today, we continue a series of hearings looking at our Nation's agricultural research capacity. Specifically, we will address the subject of nutrition research and education.

The U.S. Department of Agriculture supports approximately 20 percent of the human nutrition research conducted by the Federal Government. This is accomplished by our federally supported 1862 and 1890 land-grant colleges and by agency research performed at regional laboratories by the Agricultural Research Service. This research not only examines basic mechanisms of nutrition and growth but seeks to extend these results to the public as well.

The food pyramid and recommended dietary allowance guidelines have both received major input from nutrition researchers at USDA. Through the Extension Service, results of nutrition research are communicated to the public. The Expanded Food and Nutrition Education Program, EFNEP, is an effective agency program which seeks to educate consumers, particularly those in at-risk population groups, about nutrition.

In addition, feeding programs administered by the Department ensures a low-cost, available food supply for those segments of our population most in need. The WIC Program, the Food Stamp Program, and childhood nutrition programs are all effective examples.

Our food supply is increasingly challenged for various reasons. High levels of fat, chemical residue contamination, and microbial contamination are just a few examples of recent criticism directed at our food supply. When taken out of context, these criticisms may influence consumers by making them more susceptible and sympathetic to emotional appeals and misinformation which may appear in the media.

For American consumers to make informed food choices, they must be well informed not only about the risks but also about the benefits of our food supply.

It is becoming more clear that many of the debilitating diseases from which we in America suffer today are related to diet. Whether to prevent low birth weight babies through adequate prenatal nutrition, osteoporosis in the elderly through adequate calcium nutrition, or numerous other medical conditions, it is essential for Americans to be educated about the importance of a well-balanced and nutritious diet.

Teaching our population the essentials of a well-balanced diet may have more influence upon public health than possibly anything else we could do. If we can better educate consumers about healthful nutrition habits, we will not only prevent debilitating diseases later in life, we will also be investing in America. Every dollar we save in preventative medicine is a dollar to be invested in our children's future.

The assumption upon which this hearing is based is that strong linkages between nutrition research and nutrition education will lead to a better educated and therefore healthier consumer.

The U.S. Department of Agriculture is involved in various research and education activities involving nutrition. This hearing will review these activities and the linkages among them and elicit recommendations on how to strengthen the chain leading from production agriculture to nutrition research to the consumer.

Witnesses have been asked to address the issue of nutrition research and education. First, what are some examples of ongoing nutrition research and the extension of these results to consumers?

Second, what nutrition research is currently being done in at-risk population groups and how are these results being expressed? How effective are ongoing extension education programs such as EFNEP—Expanded Food and Nutrition Education Program? Are there any contemporary examples of nutrition research and education programs seeking to link the agricultural and health communities? How effective is interagency research coordination and how can this be made more effective? How to improve the level of nutrition expertise that physicians receive? What should be the top priorities for nutrition research and education today?

One of the major issues facing us today is hunger, not just world hunger but hunger in our own Nation as well. This hearing will seek to link our food production, nutrition, and health sectors in a new way.

If we are to properly address the challenging issues we will face in the future, it is essential to begin this dialog today. With your assistance, we are excited about moving forward with confidence.

Included in the record today will be a written statement from Assistant Secretary Eugene Branstool of the Agricultural Marketing Service at USDA.

Also statements from Dr. Dupont and Dr. Mathias.

[The prepared statements of Mr. Branstool, Dr. Jacqueline Dupont, and Dr. Melvin M. Mathias appear at the conclusion of the hearing.]

Mr. STENHOLM. Mr. Smith.

Mr. SMITH of Oregon. Thank you, Mr. Chairman.

I want to welcome the witnesses this morning. I have a prepared statement for the record.

Mr. STENHOLM. Mr. Dooley.

Mr. DOOLEY. Thank you, Mr. Chairman. I have no formal statement to make.

Mr. STENHOLM. Before I call the first panel, any prepared statements received from members will appear at this point in the record.

[The prepared statements of Mrs. Clayton and Mr. Smith of Oregon follow:]

EVA M. CLAYTON
1st District North Carolina

HOUSE OFFICE BUILDING
WASHINGTON DC 20515-3301
(202) 225-3101

Congress of the United States
House of Representatives
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STATEMENT FOR REP. EVA M. CLAYTON
SUBCOMMITTEE ON DEPT. OPERATIONS AND NUTRITION
HEARING ON EDUCATION AND NUTRITION
15 JULY 1993

Thank you, Mr. Chairman. I am pleased that you are continuing to focus the Subcommittee's attention on issues related to nutrition, and the relationship it has to the research of which the Department is so intricately involved. In an overall note, I am pleased to see that recent Subcommittee hearings have sought to tie together major areas of concern which confront our nation's capacity to produce a safe and reliable food supply.

I am familiar with programs conducted by the Agriculture Extension service such as the Expanded Food and Nutrition Program (EFNEP) which effectively communicates to consumers the findings of our nation's nutritional research. This educational process is particularly helpful to those "at-risk-groups" who are vulnerable to bad nutritional practices.

Despite recent findings relating to contamination and pesticide residues, the overall problem facing our American consumers remains the high levels of fat that make-up the bulk of our nation's diet. If we are to undertake real health care reform, we must also concentrate on "preventative care." I believe that the Department of Agriculture can and should play an important role in the future health of our nation.

Again, thank you Mr. Chairman for holding this hearing, and I welcome the distinguished participants from the Department of Agriculture and the academic world. Your comments are meaningful and crucial to the future of American nutrition.

Thank you.

STATEMENT OF THE HONORABLE BOB SMITH

SUBCOMMITTEE ON DEPARTMENT OPERATIONS AND NUTRITION

REVIEW OF NUTRITION RESEARCH AND EDUCATION ACTIVITIES

JULY 15, 1993

Thank you Mr. Chairman. I wish to welcome all of our witnesses, especially Ellen Haas, the Assistant Secretary for Food and Consumer Services. Ms. Haas has testified many times before the Agriculture Committee in her previous capacity as Director of Public Voice. I look forward to hearing her recommendations concerning the programs of the Department of Agriculture from an insider's view.

Consumers in the United States have a wide variety of healthy food choices for their diets and, according to USDA, spend 11.4% of disposable income on food, a record low. Our food production system is the best and the most efficient in the world, thanks to United States farmers and ranchers. Consumers reap the benefits of this food production and processing system.

And yet consumers are constantly told by the media of new reports outlining the dangers of a specific food or a method of production. At times there are so many of these reports that consumers will tend to disregard all advice---throwing out the wheat with the chaff.

The purpose of our hearing today to hear from USDA and other expert witnesses on what is being done to improve the nutritional well-being of people in the United States---through research and education activities. The basic advice issued by USDA is the Dietary Guidelines for Americans. I will be interested to hear from out witnesses how this basic, common sense advice is conveyed, whether the message is received, and how USDA measures the results of its efforts. Are Americans improving their nutritional well-being? Are we healthier today than ten or twenty years ago?

I look forward to this hearing and welcome all of our witnesses. Thank you Mr. Chairman.

Mr. STENHOLM. We will call our first panel, Ellen Haas, Assistant Secretary, Food and Consumer Services, and Myron Johnsrud.

STATEMENT OF ELLEN HAAS, ASSISTANT SECRETARY, FOOD AND CONSUMER SERVICES, U.S. DEPARTMENT OF AGRICULTURE

Ms. HAAS. Good morning, Mr. Chairman and members of the subcommittee.

I am very pleased, as you would imagine, to be here today along with Myron Johnsrud, who is representing the Acting Assistant Secretary for Science and Education, to discuss nutrition research and education activities of the U.S. Department of Agriculture.

I would like to say, with your permission, Mr. Chairman, I would like to include my full remarks, but I would like to summarize what I have in front of me.

Mr. STENHOLM. Without objection.

Ms. HAAS. Let me begin by saying I think we share with you very much the intent of this hearing that nutrition must become a priority mission of the Department of Agriculture, and we thank you very much for holding this hearing which recognizes that imperative.

As you know, I have appeared before this important committee many times in my career. This is my first time as the Department of Agriculture's Assistant Secretary for Food and Consumer Services. My appearance here underscores Secretary Espy's commitment to nutrition, and today's hearing acknowledges the importance of the three missions of the Department of Agriculture: Agriculture, rural development, and nutrition.

Secretary Espy has pledged to make nutrition education a priority and to work to integrate nutrition into the agriculture, health, and welfare policies of the Clinton administration. I am committed to doing just that. Secretary Espy and I want to commend you, Mr. Chairman, and members of the subcommittee for focusing on our national nutrition responsibilities.

With the clear evidence of the relationship between nutrition and health, enabling Americans to adopt eating habits that follow the U.S. dietary guidelines is essential. It is not enough for us to help produce food or even to distribute it better. We need to go beyond and establish nutrition programs that promote healthful eating habits and, most importantly, empower consumers with enough information to make healthful choices for themselves and their families.

There is no question that diet is related to chronic disease. The 1988, Surgeon General's report on "Nutrition and Health," found that for the two out of three Americans who neither smoke nor drink, eating patterns may shape their long-term health prospects more than any other personal choice. With the cost of health care spiraling, these are choices that no American can afford to ignore. Other research supports these findings.

Our nutrition education programs at Food and Consumer Services in the Department of Agriculture are firmly grounded in research to find out why diets are not as good as they should be and what we can do to help people improve them.

Over the past year, the Human Nutrition Information Service's research on the factors influencing diet has focused on the diets of single parents, the characteristics of food label users, the characteristics of those concerned about food safety, trends in the use of fruits and vegetables and, most importantly, the diets of children.

A Food and Nutrition Service study examined the nutrient content of the school lunch program, and we are currently developing validated food frequency questionnaires to assess the diets of WIC clients and to provide a basis for nutrition education.

High-quality scientific research, relevant to the areas of policy development, is absolutely essential. We need to continue to assure the professional community and the public that the Department of Agriculture is a credible source of scientifically accurate and unbiased dietary guidance. If it is perceived to be influenced by political or special interest concerns it will not, and probably should not, be accepted.

While we have done much research and produced many educational materials, USDA's effort has been fragmented over eight USDA agencies and has lacked in overall strategy. We need to build our capacity to improve our coordination so that we are offering a unified, effective message to the American people.

All of the nutrition research and education efforts we undertake depend on working partnerships within USDA, with other Federal, State, and local governments, and with the private sector.

As you know, I am a firm believer in the importance of making linkages and building coalitions to achieve shared policy goals. All of us who are part of the food system—farmers, consumers, industry and Government—have a stake in this vital agenda.

I am extremely interested in developing a nutrition education initiative to pull together all of the leading organizations and individuals in the area of nutrition education for information sharing, networking, and collaborative outreach. Coordinating mechanisms such as the Dietary Guidance Working Group and the Human Nutrition Coordinating Committee have been developed at the staff level with representation from every agency with responsibility for some aspect of nutrition education, research, monitoring, or food assistance programs.

But at the same time that we work on coordinating our message, we must also work on communicating it more effectively by harnessing USDA's extensive electronic resources to provide more responsive, persuasive, and far-reaching communications.

For example, we are using print brochures to compete with the billions of dollars spent to produce the light and sound shows that are part of today's food advertising. We need to stretch our reach by using new communications technology. If the teenagers watching MTV are the ones we need to reach, and our research tells us they are, then our messages should be on MTV.

We need to use the results of all our research more effectively. Our nutrition monitoring research tells us that food consumption patterns differ by income level, by age, and ethnic group. We must develop communications strategies that empower these high-risk groups as well as the average consumer to make healthful choices.

There already exists a scientific consensus on what makes a healthful diet. USDA's Human Nutrition Information Service, in cooperation with the Department of Health and Human Services, has provided dietary guidelines for Americans since 1980. The two Departments will soon review and revise the guidelines to ensure that they represent the best and most up-to-date advice we can give.

Also, our food guide pyramid, which visually illustrates the dietary guidelines, is the best known product of HNIS's nutrition education research. This pyramid, known to hundreds of millions of Americans across the country, has become a powerful tool for conveying the nutrition message—not only in USDA's nutrition efforts, but also appearing on box tops and packages of the food industry and other private sector initiatives.

But still we have to find out how we can best build the pyramid into education programs, and we need to do more of that.

Also, the new food labeling law promises to provide consumers with knowledge about exactly what they are eating. But the new food label is only beneficial to consumers if they understand what they are reading. With proper education, the new label will empower consumers to make healthful choices.

We not only need to broaden our education effort, we must make sure we are providing all segments of the population, particularly the most vulnerable, with nutrition information.

USDA will spend more than $300 million this year on nutrition research, monitoring, and education activities. Nearly half of that goes to support our nutrition education activities in the WIC program while very little of it is used for nutrition education in the Food Stamp Program. Nutrition education must be an integral part of all of the 14 food assistance programs managed by FNS to ensure that participants—and now we have one of six Americans who are recipients of one of our 14 food assistance programs—to make informed decisions about the food they select.

I will summarize the specific nutrition initiatives that we have underway.

The Food Stamp Program, as you know, is the largest single food assistance program, but it has the smallest nutrition education component. Less than one-tenth of 1 percent of the food stamp budget goes for nutrition education. Clearly, we must do more to provide nutrition education for the 27 million Americans who rely on food stamps to supplement their food purchasing resources.

However, for the first time, FNS will award $500,000 for food stamp nutrition education demonstration grants this summer. These grants will support development, implementation, and evaluation of innovative community nutrition interventions that focus on improved knowledge and skills for meal planning, budgeting, and food preparation.

I have set as a priority making nutrition education an integral part of the Food Stamp Program and moving from that one-tenth of 1 percent to a meaningful program that helps consumers who are needy.

Unlike the Food Stamp Program, the WIC program provides nutrition education as part of its mission, along with packages of nutritious foods and referrals to help in social services. It is designed to focus on the relationship between proper nutrition and good health and to assist participants at nutritional risk to make positive changes in their diets.

Of the approximately $140 million we spend on WIC nutrition education, about $60 million is used to promote and support breastfeeding.

Other current initiatives include the WIC nutrition education assessment project, which will investigate the effect of nutrition education provided to participants and, the second national WIC nutritional services conference that is being held this August.

Also, the nutrition education and training program is the only national school based nutrition education program. It seeks to build healthy food habits by teaching the fundamentals of nutrition to children, parents, educators, and food service personnel.

Although the program is authorized to $25 million, appropriated funds are less than half of that. Together, Congress and the administration need to place a priority on rebuilding the capacity and funding for this program which was cut back so severely in the early 1980's.

A recent collaborative effort produced the strategic plan for nutrition education in the child nutrition program. The plan provides a structure that identifies 10 national goals. It was developed by representatives from industry, professional organizations, and Federal and State agencies.

Other NET activities promote interagency coordination of child nutrition activities and provide technical assistance to other Federal agencies.

A good example of the partnerships we should continue to encourage is the NET technical assistance that is ongoing in the development of national nutrition education guidelines for the Centers For Disease Control Prevention.

Nutrition education is a vitally important component of school health and education, and I want to do more in this area.

In order to respond to the need for greater and more effective nutrition services for participants in the food distribution program on Indian Reservations, USDA has recently formed an interagency task force for Native American nutrition education. Nine Federal agencies that have responsibilities for providing nutrition education are members of the task force as well as two Native American organizations engaged in food assistance.

The task force is committed to supporting nutrition education which is especially geared to Native Americans cultures and needs.

In 1993, we requested and received $135,000 in funds appropriated to the FDPIR nutrition education program. These funds were made available for purchasing nutrition education publications and materials.

Mr. Chairman, while all of these food program initiatives are excellent examples of nutrition education activities within our programs, they are not enough. We need to reach beyond what is today's status quo. We need to reach more Americans with this critical information.

President Clinton has charged his Cabinet to reexamine the way the Federal Government is doing business and to find new and better ways to provide services for the American taxpayer. Secretary Espy is committed to meet this objective and has asked the new members of his subcabinet to help the President reinvent Government.

In that vein, we are undertaking a review that includes the manner in which the Department is organized to meet our national responsibilities for nutrition research, monitoring, and education. This is the first such review since the food and nutrition study of the 1979 President's Reorganization Project.

I believe that it is fundamentally important that the Department of Agriculture refocus on its nutritional mission. Our programs touch the lives of every American every day, and their health and their future depend on it.

Mr. Chairman and members of the subcommittee, for many years I have worked on behalf of consumers to promote access to a safe, nutritious, and affordable food supply. I greatly value the opportunity that Secretary Espy and President Clinton have given me to improve the nutritional and health status of American consumers. I look forward to working very closely with the subcommittee to meet that goal.

Thank you.

[The prepared statement of Ms. Haas appears at the conclusion of the hearing.]

Mr. STENHOLM. Thank you.

Next we will hear from Dr. Myron Johnsrud, Acting Assistant Secretary, Science and Education.

STATEMENT OF MYRON D. JOHNSRUD, ACTING ASSISTANT SECRETARY, SCIENCE AND EDUCATION, U.S. DEPARTMENT OF AGRICULTURE

Mr. JOHNSRUD. Mr. Chairman, members of the subcommittee, good morning. I am pleased to be with you, as Ellen indicated, to discuss the Science and Education nutrition research and education activities of the USDA.

Again, my complete statement has been submitted for the record, Mr. Chairman, and I will touch on most of that in my comments.

Dr. Plowman would like to have been here and sends his regrets that he had previous commitments long-standing outside the city and could not be here for the hearing.

My statement includes discussion on research and educational activities of the Agricultural Research Service, Cooperative State Research Service, and the Extension Service. Much more could be said about nutrition research programs than the time allows this morning, Mr. Chairman, and with permission I would like to file more detailed testimony from ARS and CSRS.

Mr. STENHOLM. Without objection.

Mr. JOHNSRUD. Food and nutrition programs are part of a larger context and relate to issues of economics, health, and environment. I echo what Ellen Haas stated relative to the fact that Secretary Mike Espy has pledged to work to integrate nutrition into the administration's agricultural health and welfare policies and the USDA Science and Education agencies stand ready to support him in this endeavor.

Poor nutrition is expensive and increases overall health care costs to individuals and society. It compromises a child's potential to grow into a strong healthy adult. Along the way, it affects a child's ability to concentrate and to learn in school. The saying is that "everyone eats; unfortunately, everyone doesn't eat well." Some do not eat well because they don't have the economic resources to do so and others do not eat well because they don't know what or how much food is good for them to eat.

USDA science and education agencies are developing and communicating the information that helps produce more nutritious foods, what constitutes an optimum diet, and helps maintain our human health.

The 1977 farm bill designated USDA as the lead agency for nutrition research and education, but our commitment in this area began long before 1977. In fact, this year marks the centennial of USDA's involvement in nutrition research.

USDA's mandate, from the very beginning, has been to ensure that people of this country have a safe and adequate food supply. From the farm to the kitchen table, many decisions are made that affect the quality and wholesomeness of our Nation's food supply. Those decisions are made based on the current knowledge and information drawn from the nutrition research and education.

This is why the USDA's Science and Education agencies are directly involved in both nutrition research and nutrition education. Neither of these components, research nor education, can stand alone. One gathers necessary information for food producers, processors, and consumers, while the other aids in disseminating that information in sound practical ways that empower individuals and families to make wise, economical, and healthy food choices.

A safe and wholesome food supply begins back at the seed. Breeding more nutritious varieties of crops and developing nutritious ways to produce, harvest, and process foods. One of the first big projects in the ARS Plant, Soil and Nutrition Research Lab in Ithica, New York was to study fertilizers' effect on the carotene content of tomatoes.

Carotene is precursor to vitamin A and both vitamin A and carotene have been linked to a reduced risk for some types of cancer. Today, an ARS scientist is busy breeding a new tomato variety that could easily have as much vitamin A as a sweet potato which is one of the highest dietary sources of vitamin A.

We are learning precisely what levels of nutrients the body needs for health. For example, at the ARS Nutrition Research Center on Aging, many new findings suggest that even modest dietary changes may improve health status of the elderly. Researchers have found that vitamin E and other antioxidants may enhance the immune system, improving the ability of the body to combat disease. Next time you watch a commercial for vitamins, notice which vitamin group is currently highlighted.

ARS scientists are working with the medical scientists at Georgetown University, Johns Hopkins University, and the University of Maryland, and other institutions to further study vitamin and mineral bioavailability from foods as well as interactions with other different carbohydrates in the diet. The results of these studies are important in defining ways to improve food consumption by genetics and processing to best meet people's needs.

The Human Nutrition Research Center in Grand Forks, North Dakota focuses on mineral needs and they have done pioneering work on mineral needs to neurological and behavioral functions.

The Children's Nutrition Research Center in Houston, Texas, associated with Baylor College of Medicine, conducts studies of nutrient needs for normal and preterm infants. The center has equipment not available anywhere else to monitor growth of organs, muscle, bones, and fat during pregnancy and of infants and nursing mothers. Recently, the center has begun a totally unprecedented study of nutrient needs and growth processes of teenage mothers.

This research, carried out by our Nation's land-grant universities, emphasizes nutrient requirements, interrelationship of nutrients, effects of nutrients on the immune system, and food consumer behavior.

One of the very important research studies currently underway looks at the food behavior of adolescent and young adults. There is virtually no information about the effect of nutrition and health concerns on the food intake by this group of 18 to 24 year olds. Research findings on what motivates the food choices of this age group will be used by extension and health professionals to develop appropriate and effective programs.

Research, however, is only half the job. The other half is education.

Information is only useful when it has been communicated to those that put information to work. And the information must be communicated in practical and relevant terms for the appropriate audience including consumers, farmers, food processors, plant and animal breeders, dieticians, health professionals, and all those who make decisions about food and nutrition.

For example, several years ago, ARS scientists developed a natural fat substitute called oatrim, made from oats, rich in soluble fiber and can replace all or parts of the fats in many foods. Today, just a few of the commercial products that contain oatrim are bologna, hotdogs, Peachtree brand cookies, low-cal cheese, and even many of the prepared dinners marked under the trade mark Healthy Choice.

The Cooperative Extension System which links the USDA Extension Service, the 74 land-grant universities, and the 3,000-plus county administrative units provides nutrition, diet, and health education to a wide variety of audiences. The programs are designed to provide people of all ages with the knowledge to make informed decisions about what to eat. Objectives include helping people reduce the risk of chronic disease, give birth to healthy babies, practice responsible and healthy self-care, help children attain optimum long-term health, minimize nutritional inadequacies, and improve consumers' ability to make informed choices related to food safety, quality, and composition.

One of the most well-known nutrition education programs conducted by the Cooperative Extension System is the expanded food and nutrition education program. This intensive education program is designed to help low-income families not only gain knowledge, but gain the skills and adopt the behaviors that lead to a healthier diet.

These low-income families often are at increased risk for developing nutrition and health-related problems. We have found that families who complete the 6-month program are able to make significant improvement in their diets, while spending less money on food.

As food dollars stretch further and diets improve, health risks for these low-income families are reduced. To improve evaluation of this program, EFNEP, we have developed a new evaluation/reporting system. The new system has the capability to identify how many pregnant and nursing women are participating in EFNEP and what types of public assistance they are receiving.

It also allows us to analyze people's diets before and after the program for their adherence to the USDA food pyramid, for key nutrients like protein, calcium, and fiber, and for the percent of calories coming from protein, fat, and carbohydrates. Training in the new system is underway and implementation will take place this fall.

The Extension Service and Food and Nutrition Service are collaborating to develop nutrition education programs that meet the needs of WIC clientele, pregnant women, nursing mothers, and children from birth to 5 years of age. The goals of this initiative are to improve knowledge and behavior in those areas such as food selection, purchasing, storage, safety, and preparation and to improve breast-feeding and dietary behaviors.

Another example of Extension's education programs is one targeted specifically toward addressing the problems of the needs of Native Americans. Health and nutrition education programs on many reservations target Native American youth and focus on the broader concept of wellness by combining health and nutrition learning activities with physical exercise including tribal dancing.

The Extension agents work with youth along with elders, to promote healthy lifestyles and reduce chronic diseases. One of the most important needs for nutrition education centers on maternal and infant health. Even within the broad category of women and infants, we see a group of people about whom we are particularly concerned, namely, pregnant teens. There are a host of reasons for this concern.

Teens themselves are still growing and learning to make independent decisions about the food they eat. Their own needs are increased by the critical needs of their pregnancy. Thus, it is no wonder that teens are at high risk of giving birth to babies below the healthy birth weight of 5.5 pounds. In general, low birth weight is one of the greatest determinants of infant death and disabilities, and poor nutrition is one of the major risk factors associated with low birth weight.

Low birth weight occurs in approximately 7 percent of all births. Medicaid pays almost $19,000 per delivery of a low birth weight infant versus $3,500 of a normal weight infant. Thus, low birth weight costs the Nation somewhere in the range of $5 billion each year.

Mr. Chairman, I believe that you and the members of the subcommittee may have heard of the "have a healthy baby" program in the State of Indiana. Of the over 2,000 teens and adults enrolled in this program, we have been able to collect data on about two-thirds or about 1,200 babies.

The data reveals that over a 3-year period, 97.9 percent of the babies were born normal weight and only 30 babies—2.4 percent, compared to Indiana's average of 6.6 percent—were born at below normal birth weight. As a result, the Extension Service program in Indiana prevented 52 low birth weight babies at a savings of $3.12 million in neonatal intensive care.

To put this in perspective, the total dollars spent on the program in the last 3 years has been $156,000, in other words, for each dollar spent on the program, $20 were saved. That is a tremendous return on investment in prenatal education. This program is currently being replicated in over one-half dozen other States.

"Have a healthy baby" is only one of a number of educational efforts we have for pregnant and parenting teens. For the past 8 years the "becoming a mother" program of North Carolina has demonstrated its impact on babies and mothers. Beginning as a home visitor program, teens are taught good eating patterns to ensure appropriate weight gain leading to a healthy birth.

Following the delivery, the young mothers become involved in a peer support group. Successful parenting is one of the focuses. Another is encouraging the teens to remain in school. We feel that parenting education is of importance equal to nutrition during pregnancy because our goal is to prevent overall child abuse and neglect.

Because maternal and infant health is of such vital importance to CES, and because educational programs rely on a strong research base, we have entered into a new and exciting collaborative relationship with the Agricultural Research Service's Children Nutrition Research Center.

The Extension food and nutrition specialists with Purdue University, who developed the "have a healthy baby" program, have been assigned to and working with the Children's Nutrition Research Center since April of this year. The purpose is to link the scientific findings of the CNRC with Extension faculty and staff throughout the country.

A request has been sent out to each State Extension Service asking them about their priorities, needs related to research in the areas of maternal and child health and the kinds of material which are needed, at what levels in terms of language and cultural content and so on, and what the staff development training needs are.

Our plan is to conduct teleconference and satellite conferences to address these needs. We have already begun to share the knowledge of the CNRC and, for example, researchers recently discovered that smoking alters the nutrient content in milk of lactating mothers. Information on the health consequence of smoking by lactating mothers has been communicated to local Extension educators who, in turn, are incorporating this information into news articles, broadcast items, and teaching materials.

I will now take a moment to discuss the education for people who have low education levels or who may not be proficient in English. We believe there is more to enabling people to understand information than to simplify the written word.

Of course, we recognize the importance of written materials and use these regularly, but we use research information of different educational methodologies to guide our decisions about programming. Our EFNEP participants are building skills as they apply principles of nutrition, food safety, and money management in hands-on experience.

One of these issues deal with the cultural differences. In California, for example, Extension has hired faculty who are bilingual and bicultural to work with the Hispanic population. In this way, we can develop materials that conform to cultural values and food habits of this important population.

In other instances, paraprofessionals are hired to work in the neighborhoods. The best example of that is the EFNEP program that used the system for 25 years of employing a program assistant from the community. This lends credibility to the system, and helps present a program that is meaningful and increases the access of the people to the university.

We also use volunteers in the Extension system. And the use of volunteers as teachers is also a great community development effort because the people own and share the knowledge and it is not something that belongs to the outside experts.

Hunger and undernutrition have been identified through our community-based needs assessment in several States. Florida and Montana have worked on this issue through public policy education. In both States, Extension has formed coalitions of public and private organizations in order to strengthen the safety net for the people in need.

Chronic disease prevention is another area where Extension collaborates with a host of agencies, public and private-nonprofit. For example, the States of Pennsylvania, New York, and Maryland and the States of South Carolina, Georgia, and North Carolina have formed two coalitions funded by NIH and NCI for development of cancer control coalitions.

CES sees nutritional education as a holistic, comprehensive effort. We work to understand the needs of people and create programs that will be effective in a particular situation. This educational effort is coupled with many of the other nutrition and nutrition education activities available from USDA and other health serving agencies and organizations.

Additionally, USDA agencies which provide research and education work collaboratively for greater program effectiveness and early impact. ARS, CSRS, ES, the Food and Nutrition Service, and the Human and Nutrition Information Service all participate in interagency groups. These include the Dietary Guidance Working Group, Human Nutrition Coordinating Committee, Food Safety Task Force; all which help ensure better coordination to try to avoid duplication.

Also, ES depends on the HNIS consulting group which provides feedback on what HNIS has found relative to education materials and they work back and forth to assure that all educational materials have the best input from both agencies in terms of which audience is targeted.

Also, I think it is important to mention, as we close, that Science and Education agencies cooperate closely with other Federal Departments. The Interagency Committee on Human Nutrition Research is chaired jointly by the Assistant Secretary for Science and Education of the USDA and the Assistant Secretary for Health at the Department of Health and Human Services. This committee also includes representation from National Aeronautics and Space Administration, AID, Department of Commerce, Department of Defense, Veterans Affairs, and Office of Science and Technology Policy.

There is a great deal of collaboration with private industries. I mentioned oatrim earlier which has been licensed by ARS to three companies, and sales top $1 billion in just over 1 year since their introduction.

I would cite the Extension Service's involvement with a coalition of Government industries, trade associations, and private companies to put together food labeling kits to help people better understand and read food labels.

Mr. Chairman, this concludes my statement and I would be pleased to attempt to respond to any questions.

[The prepared statement of Mr. Johnsrud appears at the conclusion of the hearing.]

Mr. STENHOLM. We thank both of you for your testimony. This very intriguing but also extremely important dialog that needs to continue because we need to start looking at some ultimate solutions.

The first question I would like to ask of you both, and Ellen, I will start with you, this is one area in which we have cross-jurisdictional interests as far as the Congress is concerned. We have multiple agencies of the Federal Government involved to one degree or another with nutrition education and feeding programs.

How can existing food and nutrition programs be made to work better when we look at some of the competing interests? I don't want to use the word "competing"; a lot of people have a lot of good intentions. The results are out there, but at the same time the criticisms are there. I mean the fact that we still have hunger in America, for example, is a valid criticism which indicates that we still have some problems.

Ms. HAAS. I think for too long, Congressman Stenholm, the problem of nutrition has been dealt with in isolation. There is not an effort to integrate and to realize that hunger can't be isolated from health, it can't be isolated from food, from agricultural policies, from welfare policies. And I think that nutrition is a bridge between how you grow the food, and the actual health outcome of the individual. We in the Department of Agriculture are that bridge in providing nutrition education and research.

What has been missing for the past decade is leadership that can bring all of those groups together to come out with ways of educating consumers in a more effective manner. We have a great deal of research and scientific consensus over the past decade—the U.S. dietary guidelines, the Surgeon General's report, the "Healthy People 2000" report.

But we have not been able to translate to the consumer, to distribute that information and educate. I am hopeful that this hearing is the beginning of that process to find a way to bring those messages in a more coherent manner. So I applaud you for bringing us all together today.

Mr. STENHOLM. Dr. Johnsrud, would you have any specific suggestions on the educational side of how we might accomplish that goal, the goal of better education, better information, better transfer of education. Ellen, I take a little exception, not for purposes of debate today, but for purposes of suggesting that perhaps you and I both need to take a look at the scientific consensus. As I have read through some of the other testimony that we will hear later today, there is ample reason to believe that there are some exciting things now happening in the field of science that are beginning to challenge some of the consensus of the last 5 or 10 years. I don't say this for argumentive purposes today, but just to preface my question to Dr. Johnsrud, as to how we take new science and new development of nutrition research and make it apply in a more constructive manner as far as the educational side of it is concerned.

Mr. JOHNSRUD. Mr. Chairman, I would respond with several comments. One, as I said in my testimony, we have continued to work hard from the production of food to the utilization; so as you breed new crops you develop the nutrition quality of those crops. Second, we have also begun and really have been working hard to focus more sharply on the needs of a specific group of clientele, specifically, there are particularly pressing needs with the young, and the elderly. So we need to tailor our education program to focus that way.

Oftentimes, as I said earlier in my testimony, for information to be meaningful you have to get down to what the people can understand, how it relates to their culture and so forth, so we have had to address our resources that way.

Third, an area that as we have had discussions before, the expanded Food and Nutrition Program used to be heavily one-on-one. We have started to change our ways on how we can reach more with the same amount of resources. That is through more group effort as people become more comfortable working that environment.

We have strengthened our ties to research. We are feeling good, now ARS and Extension Service have tied together at the Baylor Medical College and already we see benefits from that. There are many things I could mention of how we have tried to look more sharply, focus more sharply and use our resources more crisply; but it is not easy. We are finding, for example, the language matter. We have to put additional resources into getting materials so the information is meaningful to whatever the group may be. There are a lot of things we could talk about, but these are some examples.

Ms. HAAS. Mr. Chairman, if I can just add, I agree with you that knowledge about nutrition is not static. Or knowledge about the relationship of diet and health. I mentioned in my testimony that we are now preparing for the revision of the dietary guidelines that will take place again in 1995. The last time we did it was in 1990, I believe.

So this continuing effort by the Department of Agriculture and HHS will review what we have learned in that time since the last time we had that scientific consensus. But again we have the general trends and that is where we see the need to reduce fat in the diet and sodium and to increase vegetable and fruit and fiber intakes. We have to take into account all we are learning in this decade to see if what we are providing as dietary guidance is the most current and the most up to date. So I would agree with you, but what we are basing it on today does provide a consensus, if not unanimous but true consensus.

Mr. STENHOLM. Mr. Gunderson.

Mr. GUNDERSON. Thank you, Mr. Chairman. I thank both of you for your testimony.

I guess we should start out by welcoming Secretary Haas to the establishment. But I have to tell you that in the eyes of the public, you are now part of the problem rather than the solution, so get ready.

Ms. HAAS. That is the establishment? I join you, Congressman Gunderson in that honor.

Mr. GUNDERSON. I thought I would tell you what I think is part of the problem, and perhaps it is pertinent that we have this hearing today as we begin the Budget Reconciliation Conference. If Ross Perot were here, he would simply lift up the statements I have in my hand and say this is part of the problem. This is the testimony we are going to get today from the Government. We are going to start out with Ellen Haas, Assistant Secretary for Food and Consumer Services, then we are going to get something from Dr. Johnsrud, Acting Assistant Secretary for Science and Education, then we are going to get a statement from Dr. DuPont from the National Program for Human Nutrition at Agriculture Research Service, then Dr. Mathias from Cooperative State Research Service, and then Mr. Rosenberg, who is Director, USDA Human Nutrition Research Center on Aging, and then from Mr. Branstool, who is an Assistant Secretary for Marketing and Inspection Services, and then Dr. Nichols, who is the Director Emeritus for Children's Nutrition Research Center, and then a statement from Catherine Woteki, Director of Food and Nutrition, Institute of Medicine, National Academy of Sciences, and that doesn't count any State people.

Ms. HAAS. I agree with you 100 percent, Congressman Gunderson. The Department of Agriculture is the new USDA and you see before you two of us speaking for the Department, not the 10 who have written the testimonies that you have here.

Mr. GUNDERSON. These 10 people are all doing the same thing.

Ms. HAAS. But they are showing you aspects of the issue. I also mentioned in my testimony that one of our greatest challenges in the nutrition area, as it has grown in importance, as we see health care costs spiraling, we realize that preventive health means better nutrition, that we need to have a more cohesive policy within the Department of Agriculture. We have programs fragmented across the agency and we are looking at ways that we can bring together nutrition and nutrition policy in a way that is not spending the taxpayer's dollar unwisely in a duplicative manner.

So I referenced a report back in 1979, which was the last time the Government looked at food and nutrition in its disparate ways across the Government. I hope now in 1993 we take another look at how we can better perform the function of enhancing nutritional status of consumers rather than having so many messages, but really bring it together in a more coordinated fashion than it has been in the past.

Mr. GUNDERSON. I hope we can get a major consolidation and reorganization of all this. This is only at USDA for the most part. This doesn't count all the other branches of Government doing the same thing.

All we succeeded in doing in this country in my opinion is we convinced the American people that all food is bad for them. We have convinced them vegetables and fruits are full of pesticides and that 99 percent fat free milk has too much fat in it. So they decide to have a Snickers bar and a can of coke because, if they are going to die from food anyway, they might as well have the food that tastes best.

Ms. HAAS. I would agree with you that how the USDA is organized to fulfill its nutrition mission is vitally important. I know it is vitally important to the Secretary. I know this is something, as I stated in my testimony, that we are addressing and I would like to hope that in the next 6 months when we come back again to continue this discussion on nutrition, that you will see changes that will bring about better messages and more informed consumers and better research and education efforts.

Mr. GUNDERSON. Well, I hope so, too.

One final question, when you talk about dietary guidelines, are we going to differentiate between the dietary needs of adults and children or do we anticipate a single set of dietary guidelines?

Ms. HAAS. At the present time, I can only say they are for all Americans, but I believe that we have to take a very careful look at the special needs of children. We serve 25 million children in our national School Lunch Program. Children's education on nutrition is very small and meager. I think we have to take very particular care that the research that is the underpinning of that educational effort is really research that pertains to children specifically. At the present time we have this one set for all Americans.

At some later time maybe the subcommittee, the Department of Health and Human Services, and USDA may determine there is a need for children. The American Academy of Pediatrics provided guidelines for children, the American Heart Association has provided guidelines for children. We need to look at the special needs of kids because they are the hope of the future.

Mr. GUNDERSON. I look forward to that.

Thank you, Mr. Chairman.

Mr. STENHOLM. One other statement I have here is the question, do you think that food and nutrition should become a part of a new health promotion curriculum in nursing schools? Certainly nutrition and health are directly related; there is a consensus on that. And therefore that is one of the goals that we are all looking at.

I was disturbed as I was holding townhall meetings last week that in two separate occasions I had volunteers involved in the WIC program complaining, both publicly and privately, about the bureaucracy that is now taking over in the WIC program as a result of trying to tie together health and nutrition. And in one case it was almost fatal already, in which an individual volunteering their time is just saying that we have managed to turn a good program into a bureaucratic mess. That bothers me and I know it would bother you.

Ms. **Haas**. It bothers me greatly. I will in 2 weeks be speaking at the Nutrition Services Conference of WIC, in August, in Denver. Again, the program is one where it is a Federal-State cooperative effort, so federally we provide the funds and we provide the guidance and the rules but it is also carried out at the State level. I will have to look into that and get back to you.

That you have a barrier to effectiveness is something that gives us concern and if the bureaucracy is standing in the way, we want to change that.

Mr. **Stenholm**. These two individuals I referred to have tremendous amounts of credibility so I bring that up for purposes of pointing out that that is an area of concern.

Ms. **Haas**. I appreciate that.

Mr. **Stenholm**. I would turn the subcommittee over to Ms. Lambert for any questions she may have or for any other members. And if you will, you would call the next panel. We will submit additional questions to you in writing for purposes of the record on where we want to go.

[The information follows:]

DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20250

AUG 1 2 1993

Honorable Robert F. Smith
Ranking Minority Member
Committee on Agriculture
United States House of Representatives
1301 Longworth House Office Building
Washington, D.C. 20515

Dear Congressman Smith:

Enclosed are the responses to questions submitted following the Committee's hearing on nutrition research and education.

If the committee needs additional information, I will be pleased to provide it.

Sincerely,

Ellen Haas

Ellen Haas
Assistant Secretary for
Food and Consumer Services

AN EQUAL OPPORTUNITY EMPLOYER

You recently joined with the National Food Processors Association promoting a new program "Label Facts for Healthy Eating." The goal of your project is to develop educational materials that can be used to inform consumers on the new food label and how this information can be used to ensure healthy diets. Please tell us how consumers can benefit from this program.

We believe the new food label will be an effective tool that consumers can use to help them choose a healthful diet. To be most effective, consumers need to know what a healthful diet means. The Food Guide Pyramid, based on the principles of the Dietary Guidelines for Americans, defines a healthy diet. If consumers know at least the relative amounts of the major food groups to include in their diet, then the label can help them decide which foods within each group to select.

The Human Nutrition Information Service (HNIS) has been involved in a number of activities related to the new food label:

- HNIS participated in the development of the National Food Processors Association Educator's Resource Kit, "Label Facts for Healthy Eating." Staff presented a speech at the kickoff conference for this project in November 1990; served on the steering committee for the project; and reviewed all drafts of the educator's kit.
- Since 1991, HNIS has participated in an internal work group established by the Food Safety and Inspection Service (FSIS) and the Food and Drug Administration (FDA). This lead to the establishment of the National Exchange for Food Labeling Education (NEFLE). The exchange allows public and private-sector groups to pool their ideas and, in some cases, their funds, to ensure that consumers learn what they need to know to make the most of the new food label. HNIS also participates in another work group established to foster discussion and coordination of label-related research.
- HNIS research is ongoing to make label education efforts as effective as they can be. To better target educational efforts, research is being conducted to identify characteristics that distinguish label users from nonusers. So far, the data indicate that label users are knowledgeable about nutrition, care about the quality of the food they eat, and believe that the Dietary Guidelines are important. Actual differences in nutrient intake have been related to label use. For example, label users have diets higher in vitamin C and lower in cholesterol than nonusers. Results of this research have been presented at two national NEFLE conferences and at the Society for Nutrition Education's annual conference, July 19-21, 1993. USDA plans to expand the data being gathered on consumers' use and understanding of food labels. New food labeling questions are being added to the 1994-1996 Diet and Health Knowledge Survey (DHKS).

Two publications are being developed on the new food label. One is for consumers to use in conjunction with the Food Guide Pyramid to choose a healthful diet, a companion to a piece FDA and FSIS are developing to help consumers understand the basic content of the new label. The other publication is a desk reference for professionals--particularly those who will be developing materials for their own audiences. Both HNIS publications are expected to be available by the end of 1993.

Recently, there was an article in Prevention magazine concerning nutrition. In a survey, in its 10th year, Prevention Magazine found that 49% of all American adults do not adhere to good nutritional practices. Do you have any theories on why this is so? Is there anything the federal government can do to change this figure?

While Americans eat better today than they did a decade ago, current dietary habits need considerable improvement. There was a shift to a lower-fat, higher-carbohydrate diet between 1977-78 and 1989-90, according to consumption surveys conducted by the Human Nutrition Information Service (HNIS), but the average American still eats more fat and fewer fruits, vegetables, and grain products than recommended by the Dietary Guidelines. The need for more and better nutrition education is clear.

To find effective ways to help consumers improve their diet, we conduct research on the potential barriers to dietary change. According to USDA's Diet and Health Knowledge Survey (DHKS) which started in 1989, some of the major barriers may be lack of awareness about the relationship between diet and health, lack of motivation, inaccurate perceptions about the quality of one's own diet, and lack of knowledge and skill to implement healthy eating practices.

- Lack of Awareness: While meal planners seemed to know that what they eat can affect their health, they don't really know why. Almost ninety percent of meal planners interviewed in our surveys agreed with the statement: "What you eat can make a big difference in your chance of getting a disease, like heart disease or cancer." But fewer knew how health problems are related to specific nutrients. More than 80 percent of respondents knew about health problems related to sodium and cholesterol, only 75 percent knew about health problems related to how much fat a person eats. Fewer still--65 percent or less--were aware of health problems related to saturated fat, calcium, fiber, and iron.

- Lack of Motivation: In our surveys, meal planners were asked how important it was to them personally to follow each of the Dietary Guidelines. Although many considered it important to "avoid too much fat," about one in eight meal planners rated this Guideline of low importance.

- Meal planners were also asked to rate the importance of "eating a variety of foods," of "eating at least five servings a day of fruits and vegetables," and eating at least six servings a day of breads, cereals and other grain products." (These servings of fruits, vegetables, and grains are the minimum amounts suggested in the Food Guide Pyramid.) Meal planners placed a lot of importance on "variety" but less importance on or little understanding of what variety really means. About one-fourth of survey participants said that it was of low importance to them personally to eat at least five servings a day of fruits and vegetables.

- Inaccurate Perceptions: People's perceptions about their diets don't always match reality. For example, about 40 percent of main meal planners responding to the knowledge survey thought their diets were "about right" in terms of fat. But only about one-fourth had fat intakes that met the Dietary Guideline to limit fat to 30 percent of calories or less. Similarly, for saturated fat, about 50 percent of meal planners thought their diets were "about right." But, fewer than 35 percent reported intakes that met the Guideline to limit saturated fat intake to less than 10 percent of calories.

- Lack of Knowledge: The last barrier to dietary change is lack of knowledge about how to put the Guidelines into action. In recent research, consumers expressed an interest in nutrition and some understanding of the health benefits of following the Dietary Guidelines, but said they found it difficult to "put it all together." They need "how-to" information that shows practical ways to eat healthy. Knowledge about nutrients in foods and about how to plan for variety in the diet may help.

  There is also confusion about which of the many different sources of nutrition information consumers should trust. They say they get conflicting advice and don't know who to believe.

There is much that the Federal government can do better to help Americans improve their diet. The need for a widespread nutrition education effort is essential. We must be sure we not only help produce and distribute food but give consumers the knowledge they need to develop healthful eating habits.

We need to continue our research and reviews to ensure that our standards for a healthful diet are sound and up-to-date.

Do you believe that American consumers are confused as to what nutritional advice to follow since there are frequent and sometimes conflicting studies coming out on this topic?

Yes, our data indicate that many consumers are confused about what diet advice to follow. About three-quarters of the main meal preparers interviewed in USDA's Diet and Health Knowledge Surveys agreed with the statement: "There are so many recommendations about healthy ways to eat, it's hard to know what to believe." Women from low-income households were more likely than those from higher income households to agree with this statement. In addition, results from focus groups conducted during development of educational materials suggest that consumers are confused and frustrated by diet advice they perceive as conflicting or difficult to understand. They want specific "how to" advice on choosing a healthful diet in terms they can understand and which they can easily put into action.

While much has been done to reduce conflicting advice about diet and health, obviously more needs to be done. The issuance of Dietary Goals by the Senate Select Committee on Nutrition in 1977 and the Dietary Guidelines in 1980 by USDA and the Department of Health and Human Services (HHS) were milestones in translating nutrition research into principles for a healthful diet that consumers can understand and trust. While new research will continually expand and refine what we know about the relationship of diet to health, the Dietary Guidelines represent a consensus of nutrition experts on the meaning of a healthful diet. These Guidelines have been widely accepted by the professional community and consumers, and serve as the basis of Federal dietary guidance policy. A study of the impact of the Dietary Guidelines conducted in 1988 concluded that the simple presentation of high priority dietary guidelines is an effective way of communicating nutrition information, and emphasized the importance of experts in health and nutrition speaking with one voice in identifying important dietary practices.

USDA's nutrition education materials and programs as well as those of other Federal agencies and the private sector have focused on helping consumers understand and implement the Dietary Guidelines. Beginning in the early 1980s, the Human Nutrition Information Service (HNIS) conducted research to develop a new food guide to help consumers apply the Dietary Guidelines to their daily food choices. Unlike earlier food guides, this guide addresses both concerns about nutritional adequacy and excesses. Recently illustrated as the Food Guide Pyramid, this guide has been well received by professionals, the media, food industry, educators, and consumers as a practical tool for selecting a healthy diet. Widespread use of this tool in Federal nutrition education materials and programs as well as those of the private sector, promises to reduce consumer confusion and empower them to choose a healthy diet. HNIS plans to actively promote and facilitate understanding and use of the Food Guide Pyramid.

The Agriculture Appropriations bill passed by the House of Representatives proposes to transfer the functions of the Human Nutrition Information Service back to the Agriculture Research Service (ARS). Please comment on this transfer from Food and Consumer Services to ARS.

The Human Nutrition Information Service (HNIS) was created precisely because the organization arrangements in place at that time were unable to provide the appropriate data in a timely manner. I do not believe that reassigning these key functions to ARS will solve the problem. The solution lies in making HNIS perform its responsibilities correctly and that is exactly what the agency's new senior managers are committed to doing.

ARS is primarily engaged in basic research while HNIS conducts applied research more directly linked to the policy and programmatic needs of the Department. For example, HNIS work in food composition is very different from the ARS work. The food composition and analysis work done in HNIS is aimed at compiling as much information as is available from industry, from private or government laboratories, or other sources on the nutrients in foods. Such information is then aggregated and becomes part of a complex system of computer programs which store all available nutrient data and other descriptive information such as growing area, methodology, processing, and season. Such information is used in food intake surveys, for nutrition education programs, to facilitate the labeling of foods, and to develop guidelines for food assistance programs. In contrast, the Nutrient Composition Laboratory (NCL) of the Agricultural Research Service focuses on the development and improvement of the methods for the chemical analysis of foods. They supply very little actual nutrient data to us. HNIS has had to get its nutrient data from extramural contracts with universities and independent laboratories. Also, conducting food surveys requires expertise of many types of professionals in addition to research scientists. For example, HNIS employs numerous nutritionists, home economists, economists, food technologists, and chemists to staff the various technical systems required by the survey, to develop and improve the methodology on dietary intake, and to manage the survey. In summary, moving the HNIS work to ARS would require a complete redefining of the ARS mission from basic to applied research.

One of the surveys sponsored by the Human Nutrition Information Service is the Continuing Survey of Food Intakes by Individuals. Some have expressed concern about the cost of this survey ($14 million covering 15,000 individuals). Please explain the uses of this survey and whether the costs are in line with similar surveys.

Data obtained from the Continuing Survey of Food Intakes by Individuals (CSFII) are unique in several ways. The CSFII provides the only nationwide information on:

- Multiple days of dietary intake for all age and sex groups used in determining proportions of individuals at risk for poor nutrition and in addressing food safety concerns.
- Multiple food program participation (Food Stamp, Women, Infants, and Children Supplemental Food Program (WIC), School Breakfast and Lunch) within households and links between program participation and food and nutrient intakes.
- Links among attitudes and knowledge about diet and foods with actual behaviors of individuals for use in the planning and targeting of nutrition education programs.
- Household and individual water sources and the quantities of water consumed by individuals as requested by the Environmental Protection Agency (EPA) and the Food and Drug Administration (FDA).
- Water sources of fresh fish eaten by individuals as requested by the EPA and the FDA.
- Whether foods eaten were home grown as requested by EPA.
- Food usage by age and sex group and the nutrient contributions from those foods for use by the Federal Trade Commission (FTC) in evaluating advertising claims and to predict demand for agricultural and other food products.
- Where foods are obtained and eaten by age and sex group for economic analysis of food consumption, for tracking away from home eating, and for targeting nutrition education strategies.
- Nutrient contribution of foods eaten away from home by age and sex group, for example, the nutrient contribution of foods eaten at "fast food" restaurants for teens.
- Portion sizes and frequency of foods eaten by individuals -- "per user" food information. This information has been used in developing effective nutrition education materials, such as the Food Guide Pyramid. A publication providing this information has been cited as the legal source of data for

meeting regulations issued in California's Proposition 65.

- Food consumption patterns of the population and population subgroups.

- Food and nutrient intakes that reflect seasonal differences.

For the current CSFII, the budget proposes to spend $13.5 million over a four-year period surveying approximately 15,000 individuals or approximately $900 per person. HNIS has carefully reviewed its options in obtaining this cost estimate, and believes it to be reasonable. The costs of the CSFII were developed with the Census Bureau and are in line with costs of surveys conducted by the Census Bureau. Included in this estimate are costs associated with developing the survey and conducting a pilot study, development of five questionnaires, training manuals for in-house and field staff, publicity materials, and data collection and processing for a full-scale pilot study. Additional costs are associated with administering the survey, conducting the extensive field interviews, collecting the data, and coding, editing and "weighting" the data into useable form. Conducting the survey itself will consist of one in-person household interview, two in-person dietary interviews per individual, and one telephone follow-up interview per household (for a total of 42,000 interviews). Although the data collection procedures for two surveys are very different, the cost per person of the CSFII is substantially lower than the per person cost of the National Health and Nutrition Examination Survey (NHANES) conducted by the Department of Health and Human Services.

HNIS is exercising strong management control over the CSFII. The CSFII contract is a fixed price contract designed to produce quality data in a timely manner.

Some Members of Congress and others have raised concerns as to whether USDA suffers from an inherent conflict of interest in dealing with nutritional issues. How do you regard this perception of a conflict of interest? Does it have any effect on HNIS in the development of the dietary guidelines?

I am aware of criticism that the Department of Agriculture has received in the past regarding the appearance, whether real or perceived, of a conflict of interest in dealing with nutritional issues. Nutrition policy based on high-quality scientific research is a long-held principle at this Department.

Because the Department of Agriculture oversees the food production of this country, administers food assistance programs for the poor, and provides leadership in nutrition research and education, it has a special role to play in establishing nutrition policy. This role must center on ensuring that a balance exists between the producer and consumer interests within USDA. The Department's position is clear in demonstrating that for nutrition policy, producer needs are best served by serving the needs of the consumer first based on the best scientific research. What the Department of Agriculture says about healthful eating must be and is scientifically accurate and unbiased. If it were to be perceived as being influenced by political concerns or the concerns of any special interest groups, it would not and should not be accepted.

A conflict of interest, whether real or perceived, has not and will not have any effect on the Human Nutrition Information Service in their leadership role in developing the Dietary Guidelines. Beginning with the 1980 revision and again with the 1985 revision, USDA and the Department of Health and Human Services (HHS) have established a Dietary Guidelines Advisory Committee made up of nine prominent experts in nutrition and health to review the Guidelines in light of new scientific evidence. The Committees have conducted their work at open meetings to the public allowing for public input. Each Committee has recommended revisions to the Dietary Guidelines in a report to the Secretaries of both Departments. The recommendations of each Committee have been totally accepted with minor changes for grammatical clarification and from the text of the Dietary Guidelines. We are going to be using that same process for the review and possible revision of the Dietary Guidelines due to be completed in 1995. We at USDA and our colleagues at HHS believe this process provides for broad professional and public input.

Looking at the historical record, the 1980, 1985, and 1990 Dietary Guidelines for Americans were widely accepted and widely used. The professional community has raised no conflict-of-interest concerns about these earlier efforts. USDA and HHS can assure this Committee that we will continue in that tradition in the updating of the Dietary Guidelines that will be released in 1995.

Will nutrition education (or "dietary therapy" a term used by the Center for Science in the Public Interest) be a part of the Clinton health care reform package? Should it be?

According to the Department of Health and Human Services (HHS), the President's health care reform package has not been finalized yet and discussing its content would be premature. However, HHS is interested in the area of nutrition education in schools. Attached is a copy of a letter from Secretary Shalala on the subject.

At USDA, we are committed to making nutrition education an integral part of all food assistance programs. Secretary Espy has pledged to make nutrition education a priority and to work to integrate nutrition into the agriculture, health and welfare policies of the Clinton Administration. While nutrition education is one of the primary missions of the Women, Infants, and Children Supplemental Food Program (WIC), it is the smallest component in the Food Stamp Program that serves more than 27 million people. The Nutrition Education and Training Program is the only national school-based nutrition education program which has received only half of the authorized funds over the past several years.

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Ms. HAAS. Thank you, Mr. Chairman.

Ms. LAMBERT [assuming chair]. Thank you. Welcome. As the chairman jumps out the door, I would like to thank him for bringing up these important issues for us.

I always appreciate the efforts of this subcommittee on bringing the important issues before us.

Being the product of a home economist and farmer, I have a tremendous amount of interest in this issue, as well as representing an extremely large agricultural rural area with an enormous amount of poverty in it. I am a believer in preventive medicine, and nutrition plays a tremendous role in that. The only way to make that positive is to educate people and get that word out.

I am especially interested in today's topic of nutrition research and education and especially USDA's role in that area. We learned in yesterday's hearing, leadership in this area is not only needed to help inform the public of healthy dietary practices, but to educate the public on the benefits of the safe and an abundant food supply that we have in this Nation.

While I am sure that we will focus on distribution of dietary information, there is another area that I hope we will also explore. I have held a long-standing belief the public should be well aware of the benefits that consumers accrue from production agriculture; coming from an agricultural area you can imagine why.

The critical link we all enjoy with the Nation's farmers is important. However, the relationship is one that seems largely overlooked. One could cite the onslaught of negative news articles regarding certain policies. Rarely do we take the time to pull back and see the critical role our agriculture plays in our Nations well-being.

I know the Extension Service does an excellent job, especially in my district, as well as my State, in providing information to our farmers and communities. I am anxious to learn what efforts could be undertaken to educate the public further on a variety of other issues involving nutrition. Before I start on my questions, I would like to welcome Madame Secretary and let you know we look forward to working with you.

Ms. HAAS. Thank you.

Ms. LAMBERT. And Dr. Johnsrud.

Mr. JOHNSRUD. Thank you.

Ms. LAMBERT. As I said, coming from a predominantly agricultural area and a product of a farmer and a home economist, who is very dedicated to that, I have referred to the need to clarify the agricultural or the beneficial role of agriculture in the Nation's economy. Is there an effort within the nutrition education sector to include information regarding agricultural benefits, on the complementary role of agriculture in this Nation as to what it does?

Ms. HAAS. Up to this point, Congresswoman Lambert, in the material that I have reviewed, it didn't tend to do that. I think that is an omission.

If we are really going to educate about food and its relationship to health, we need to also have an understanding of how that food is grown, and children in particular have a wonderful opportunity to learn that food doesn't just come from the supermarket; it doesn't grow in a can, but really grows in the fields.

I think that as we face the challenge of making nutrition a priority mission for the Department of Agriculture and really reinvigorating our nutrition education efforts, it is my hope we can integrate agriculture and nutrition into our messages.

We are dedicated to doing that. Nutrition education is one of my priorities and I hope by the end of this term that we will see great differences and that it is win-win for the farmer and the consumer.

Mr. **JOHNSRUD.** We have had special efforts over the years in the Department of Agriculture in addition to those that Ellen mentioned. I will cite some to illustrate: "Agriculture in the classroom" focuses on helping children in the classroom to understand that food just doesn't come from the cooler in the grocery store, and that reaches a whole array of kids in the school system.

Another is the urban gardening program which functions in the city, helps to educate how food grows and how to raise food. That is a useful program.

As part of our program with the integrated pest management, we help and work directly with the producers to produce food that has a kind of production practices that helps assure a healthful food supply with good use of pesticides so they are not a critical issue.

We do give special attention to helping, from the producer sector all the way through to the consumer, to understand the elements of raising a safe and nutritious food supply within the spectrum of youth and adults. We could cite others, but I cite those to say attention has been given. This doesn't mean that more attention doesn't need to be given, but there is attention being given to it.

Ms. **LAMBERT.** It is a critical role we can play. We see the dovetailing of USDA as well as other agencies. My history in biology, I don't see enough youngsters coming home with a Dixie-cup of whatever the latest bean that needs to be grown in kindergarten or first grade or whatever. It is critical that we have a marriage there, have an understanding of what agriculture does in providing a safe and an abundant food supply, and how critical that is to your individual health as well as what you can learn from that in preventive medicine.

I was very disturbed when we talked about the nutrition education and the Food Stamp Program. Being the largest single food assistance program and recognizing that it has the smallest amount of nutrition education, is in my opinion unacceptable. I think one of the areas that is difficult for us in an area where we have a large sector of poverty, and we also have a large sector of farmers, is that you often see a clash because of the media and the perception from the general public of conflicts, specifically that these programs take away from the farming community and the farming community doesn't want to see that happen.

There is a tremendous opportunity to educate both sides of that and to begin to work on that as far as nutritional studies that we could allow in these programs. I guess most importantly, do we see that happening or do we see that in the future of nutritional education?

Ms. **HAAS.** I can't be emphatic enough to say that that will happen. When we held the national hunger forum, which was the first forum of the Secretary's issue forums to set an agenda for the future, we did not only have a panel on "access to food," but we called it "access to a healthy diet." It really is imperative that we provide and make nutrition an integral part of our Food Stamp Program and the fact that we have not provided that kind of nutrition education, I think, is a very sad commentary, because the 27 million people who are part of the Food Stamp Program are tremendously vulnerable and each of their food purchases means so much. It is very short-sighted if we are just providing assistance for food without understanding the health consequences of tomorrow.

So we will—I won't even say redouble—but multiply by many times our efforts to bring that kind of nutrition communication in our 1994, 1995 budget. You will see that we will have this kind of preventive health measure and nutrition education as an integral part of our Food Stamp Program.

Ms. LAMBERT. I am glad to hear that. I think it will reap rewards not only in health benefits, but in the relationship between those that may be in conflict.

Ms. HAAS. If I could say again that during the national hunger forum we had more than 65 speakers. We had many farm organizations represented at the table, and I remember the senior vice president for the National Pork Producers took his time to speak about nutrition and the need for additional nutrition education and other farm group representatives, as well, did the same.

What we heard from the many people who were there as well as nutritionists is that this is a direction we do have to go. We intend to do that and I think that it will reap all kinds of benefits, as you have just said.

Mr. JOHNSRUD. May I comment in response to your question relative to the education for food stamp recipients?

Ms. LAMBERT. Yes.

Mr. JOHNSRUD. About 60 percent of the EFNEP participants who participate each year are currently food stamp recipients, approximately 40 percent are WIC participants.

Ms. LAMBERT. And that is quite important to not just limit it to one assistance program, but to make sure that you have all of them incorporated into it. I have a particular county in my district that reaped tremendous benefits from the dovetailing of all of the different assistance programs and how they can work to accentuate and accelerate all of the different programs to work together.

One last question, how is the Extension Service utilized in disbursing nutrition information?

Mr. JOHNSRUD. I gave several indications in the testimony. We do it through intensive programs like the one-on-one, almost one-on-one, or small group settings with families and youth in the EFNEP program. For example, the program has a definitive agenda, 6-month program, and families graduate from the program when they have developed certain skills in dietary management in their family, in food purchasing using the Food Stamp Program, et cetera. That is one approach.

Another approach, it may well be in larger group settings with the elderly, for example, that are in either retirement homes or elderly communities.

Another example is the youth program. By youth, I include ages that include pregnant teenagers. I have seen programs, for example, where the Extension Service goes into the high school.

Ms. LAMBERT. That was my next question.

Mr. JOHNSRUD. Programs for pregnant teenagers, on how they maintain their health so they will do everything they can to avoid a low birth weight baby. That is a very costly venture for society when you get a low birth weight baby.

We have a youth development program, and this penetrates into many programs. In addition, we also use the mass media and it is done through everything from the public mass media to also using satellites extensively now. We are using the satellite system to offer programs that will penetrate communities with satellite downlink where staff are present with a group of people to help them understand and interact with the teachers of those courses.

What you do with the Hispanic population in Los Angeles, for example, may be different than how you approach the Native American population in South Dakota or what you do with a group of youth in Lincoln, Nebraska.

Ms. LAMBERT. So there is an active movement as far as the infiltration of the Extension Service into the school systems as well as working with other programs, the WIC programs and the other county programs.

Mr. JOHNSRUD. Yes. At the local level, the program assistant in EFNEP will work and get referrals directly from the local food and nutrition office and that is where they identify, and in fact do programs at the office where the families come.

Ms. LAMBERT. Are there areas where you feel there could be more involvement from the Extension Service?

Mr. JOHNSRUD. There is always room for more. There are people not being touched yet so there is a constant effort to see how we can improve that process and there are studies being done. In fact, the current funding of the $3.5 million that Ms. Haas mentioned is a joint effort with her office and our agencies to see if there are better ways to more effectively reach the group you are targeting on. So the first year effort is designed specifically to see if there are more effective ways to really make a difference with these families.

Ms. LAMBERT. My personal opinion is there is a lot that can be done and that two heads are better than one, and if you can get the groups together, that would be great.

Mr. JOHNSRUD. I would add, most of our nutrition is in concert with other agencies. When you get on the ground, you see coordination with other local agencies that tie back oftentimes to the USDA or HHS.

Ms. LAMBERT. Yes.

Ms. HAAS. I was just going to add, the issue of reach is really a very important one to recognize. Again, when we talked about the 27 million people who participate in the Food Stamp Program, the EFNEP program, which is such a good program, reaches less than 400,000 of our food stamp recipients. So we have to find different models so that we can reach that large number who are making food choices every day that may really compromise their health.

Ms. LAMBERT. Thank you.

Mr. STENHOLM [resuming chair]. We thank you both for your attendance. We look forward to working with you in the days, weeks, and months ahead.

Ms. HAAS. Thank you very much.

Mr. JOHNSRUD. Thank you.

Mr. STENHOLM. We will call panel 2.

Diverting a bit from the regular order, I would like to on behalf of Chairman de la Garza extend to you, Dr. Nichols, his regrets at not being here and being able to introduce you personally today. He is tied up in a meeting at the White House, and he was sure you would understand why he wouldn't be here. Dr. Nichols, I extend a Texas greeting to you also and would now yield to our good friend from Minnesota, David Minge, for an introduction that he would like to make before he has to get on to some other pressing business today. David.

Mr. MINGE. Thank you, Mr. Chairman. I am honored to be able to introduce Ellen Schuster who is with the Minnesota Extension Service. She is a registered dietitian and a certified home economist. She has coordinated the Expanded Food and Nutrition Education Program in Minnesota for the past 8 years. As a professor at the University of Minnesota, the focus of her work is on low literacy nutrition educational materials. Her published works include a pamphlet on nutrition for low literacy audiences and a brochure for educators and others who need assistance in developing readable written material. These pieces are being used by consumers and educators in many States, and I am honored to introduce Prof. Ellen Schuster to the Subcommittee on Department Operations and Nutrition. Thank you, Mr. Chairman.

Mr. STENHOLM. Thank you. I hope everybody else doesn't feel slighted. If you do, we will think up a pretty good introduction for the rest of you on down the line.

Mr. MINGE. She is special.

Mr. STENHOLM. That is obvious. We will first hear from Dr. Buford Nichols, director emeritus, Agricultural Research Service, Children's Nutrition Research Center in Houston. Dr. Nichols.

STATEMENT OF BUFORD L. NICHOLS, JR., M.D., DIRECTOR EMERITUS, CHILDREN'S NUTRITION RESEARCH CENTER, AGRICULTURAL RESEARCH SERVICE, U.S. DEPARTMENT OF AGRICULTURE, ACCOMPANIED BY DENNIS BIER, DIRECTOR

Dr. NICHOLS. Thank you, Mr. Chairman, members of the subcommittee, it is a privilege to appear before you.

Mr. STENHOLM. Excuse me, Dr. Nichols, I understand each of you have been briefed as to the necessity of staying within the 5-minute rule. We will run the clock, and we would deeply appreciate each of you staying within that 5 minutes as close as you possibly can. Your entire statements will be made a part of the record.

Dr. NICHOLS. Thank you. I am Dr. Buford Nichols, and I served as Director of the Children's Nutrition Research Center, the CNRC from its founding in 1978 until this month. I am now the director emeritus, as you indicated, and I am proud to announce that the new CNRC Director, Dr. Dennis Bier, to my left is joining us today.

Dr. Bier is a very distinguished nutrition scientist who comes to Baylor College of Medicine and to the ARS from Washington University in St. Louis. Mr. Chairman, I compliment you on the timely interest that you have in the topic of nutrition research and education. As Dr. Johnsrud pointed out, this year we celebrate the centennial of the USDA's involvement in human nutrition research. As I see it, nutrition is the study of how food is related to health, and prevention of disease is one of its most fundamental objectives.

The Department's leadership is quite appropriate since its long-term mission is our food supply, its production, processing, distribution, and consumption. The research work that we do at the Children's Nutrition Research Center has the potential to impact all of these aspects concerning the American food supply. As Ms. Haas stated, 5 of the 10 leading causes of death in this country have a nutritional basis. To us at the CNRC it is clear that these nutritional antecedents begin in infancy and early childhood. Learning the sequence of events and preventing them with adequate nutritional education could represent a very substantial savings in health costs in the future of this Nation.

Ms. Haas commented about the important linkage between food, agriculture, and health. I point out that the CNRC at Baylor College of Medicine is located in the Texas Medical Center. It is not just a Texas brag, this is the largest medical complex in the world, and we are very pleased to have a food and nutrition component in that environment. In response to Congressman Gunderson, the CNRC is the only Federal center providing the foundation of basic research for applied programs such as the WIC and school lunch programs, as well as for the general education efforts in nutrition conducted by Extension and other agencies.

We link agricultural production and food processing with medicine to make babies and their mothers healthier. As Dr. Johnsrud indicated, we are studying the relationships between adolescent nutrition and the outcome of teenage pregnancy. The relationship between intake of milk, particularly, and bone growth during the adolescent growth spurt is an issue in which we have pioneered and are leading the world. The primary function of the CNRC is research. However, we also want our research to be used. To broadly apply our research results we must keep sight of the fact that people produce and eat foods, not nutrients. We must be able to accurately translate research findings about nutrient needs into practical recommendations about food needs, and Secretary Haas and Dr. Johnsrud both talked about the dietary guidelines.

Secretary Haas also indicated that the dietary guidelines are uncertain as to how they apply to the young child. To do the outreach of the CNRC, we have for many years actively collaborated with the extension, WIC, child nutrition, and other USDA programs, and as Dr. Johnsrud said, this year the extension service placed their national program leader for infant and maternal health at the CNRC to help distribute our research findings. The relationship between food and health has historically been a key part of the mission of U.S. agriculture. In this the centennial year of the USDA human nutrition research, I believe that it is time to rededicate our efforts to that effect. We at the CNRC are proud to take our place in that line of USDA researchers stretching back a century to the pioneering work of Dr. Atwater and we are ready to move forward to a better and healthier future for all of our people.

We thank you, Mr. Chairman, for the opportunity to participate in this hearing and we look forward to further demonstration of the linkages between food, diet, and health.

[The prepared statement of Dr. Nichols appears at the conclusion of the hearing.]

Mr. STENHOLM. Thank you, Dr. Nichols.

Next, Dr. Rosenberg.

STATEMENT OF IRWIN H. ROSENBERG, M.D., PROFESSOR, MEDICINE AND NUTRITION, AND DIRECTOR, HUMAN NUTRITION RESEARCH CENTER ON AGING, U.S. DEPARTMENT OF AGRICULTURE, TUFTS UNIVERSITY

Dr. ROSENBERG. Mr. Chairman, and subcommittee members, my name is Dr. Irwin Rosenberg, and I am professor of medicine and nutrition and Director of the USDA Human Nutrition Research Center on Aging at Tufts University in Boston. I want to thank you for this opportunity to testify on this very important issue.

In the 15 years since Congress first appropriated funds to the Department of Agriculture to establish our center, the only such center dedicated to research on nutrition and aging in the world, we have been studying the nutritional needs of the elderly and the dietary requirements for maintaining health and preventing disability and disease of our aging population. At the beginning of this century 1 in 25 Americans was over the age of 65, and early in the next century 1 in 5 will be over the age of 65, and older Americans are the fastest growing segment of our population, and they are the ones who are at the highest risk of degenerative conditions that can lead to loss of function, to disability, and to the loss of independence and quality of lives which makes our older years so important.

We continue to seek ways of assessing the nutritional and health status of older Americans who, like infants and children at the other end of the spectrum of life, are at increased risk of undernutrition and malnutrition, but in this case because of the changing physiologic status of elders and for social factors as well. I will mention just a few of our research findings which are being translated into programs to help the health and well-being of the elderly, and I would like to add a few more details to the written record if I may, Mr. Chairman.

Mr. STENHOLM. Without objection.

Dr. ROSENBERG. Our research focuses not only on the needs of older Americans, but on older Americans themselves. Thousands have participated in our studies over the past decade, and they have been some of the best agents for educating their peers about the importance of proper nutrition and the maintenance of health in the older years. Some examples of our work are to be listed in the following: Osteoporosis, as was mentioned earlier, seriously affects more than 1.3 million American women at an expense of $10 billion in health care costs. Equally important to research on calcium needs that has been mentioned is research that shows that we must meet our requirements for vitamin D in that same population if we are to prevent bone loss, since this population has special requirements imposed upon it by their special physiologic changes.

Our investigators have also documented the importance of physical activity to stimulate the skeleton for maintenance of body calcium and also to maintain the strength and function of our muscles. We have worked to define the healthiest mix of dietary fats which influence blood cholesterol and related lipids, and the risk of degenerative conditions of the cardiovascular system. Our scientists have been instrumental in the setting of national guidelines for the prevention of heart disease under the national cholesterol education program. We have emphasized studies of the interaction of nutrition and specific forms of exercise and developed programs that are effective in helping older adults maintain their lean muscle and associated physical strength and mobility. Our investigators have focused research on the relationship between the vitamin intake in our diets and our immune systems, which tend to decline with age and the importance of nutrition and preventing that decline.

Similarly, we have studied the relationship between nutrients, especially antioxident nutrients in the development of cataracts. Cataract extraction is the most common operation in the elderly at a cost of at least $4 billion annually in this country, and here we have a nutritional means of lessening the risk and lessening the progression. No condition is more devastating to the quality of life of older Americans and that of his or her own family than the loss of cognitive function, mental alertness, and memory. While many conditions contribute to the loss of cognitive function in some of our older population, our research causes us to emphasize the importance of nutritional factors, including dietary vitamins for the maintenance of healthy central nervous system functions. These and related research findings showing that healthy choices from the abundance of food grown on our farms can contribute to the prevention of disability and special forms of undernutrition have been communicated to the public in many ways.

The work described above is published in scientific journals and books, and has been widely quoted in the public press, and also disseminated through the publication and education efforts directly through the Department of Agriculture. Hundreds of newspaper and magazine articles in the past year alone have described these research accomplishments and have been commented upon by our elderly consumers. We have used our publications and networking through our own research volunteers and their organizations for the distribution of information about the benefits of proper nutrition and physical activity.

In conclusion, the research at the USDA Human Nutrition Research Center on Aging can be looked upon as an example of a very productive and fruitful association between Government and the private sector, since our research and its dissemination to the public depend critically on the utilization of resources and expertise both in the Government and at the university and private level. I believe that it is possible over the next decade that our investment in proper nutrition and physical exercise among the aging population will fundamentally alter our concepts and costs of health and health care.

We need to examine our techniques for introducing this information into medical practice so that diet and nutrition become an integral part of health care and health maintenance. Thank you, Mr. Chairman.

[The prepared statement of Dr. Rosenberg appears at the conclusion of the hearing.]

Mr. STENHOLM. Next Dr. Woteki.

STATEMENT OF CATHERINE E. WOTEKI, DIRECTOR, FOOD AND NUTRITION BOARD, INSTITUTE OF MEDICINE/NATIONAL ACADEMY OF SCIENCES

Ms. WOTEKI. Thank you, Mr. Chairman, and good morning. I am Catherine Woteki, Director of the Food and Nutrition Board. I would like to request that my written testimony be entered into the record and I will summarize orally some of the points in that testimony.

Mr. STENHOLM. Without objection.

Ms. WOTEKI. Also for the record I would like to correct a misimpression that arose during the questioning of the earlier panel. The Food and Nutrition Board is part of the National Academy of Sciences, and although our name carries national as part of it, we are not a Government agency. The academy is a private institution chartered by the Congress during the Lincoln administration in 1863, specifically for the purposes of providing advice to the Government when the Government asks for that advice.

Mr. STENHOLM. I don't blame you for clearing that up.

Ms. WOTEKI. What I would like to do is to point out that my written testimony addresses aspects of four of the questions that you have posed to us that relate to communicating research results to the public, research needed in at-risk populations, nutrition expertise among medical personnel, and priorities in nutrition research, and that written testimony is based on studies that have been performed by the Food and Nutrition Board. I can make copies available to you and to the members if you would like to have copies of those studies that are referred to.

In my oral testimony I would like to really concentrate on two of the areas, communicating research results to the public and priorities in nutrition research. The Federal Government has made recommendations for improving American people's diet for almost a century, and those activities were really initiated by the Department of Agriculture in 1917. Early dietary guidance was directed mainly at the avoidance of deficiency diseases. We have made substantial advances, though, in the last 25 years in understanding how diet affects health, particularly in the role that diet plays in the cause and the prevention of chronic diseases. So in our view the main challenge is no longer to determine what eating patterns should be recommended to the public, although admittedly there is more to be learned and a substantial amount more to be learned.

The main question facing us is how to inform and encourage the population to eat to improve its chance for a healthier life. Now, there are really a very limited number of tactics that we can use to increase the prevalence of healthful eating patterns. There are three of them. We can alter the food supply, we can take things out of it that may be harmful to health, we can add things to it that may be beneficial to health, and we can make substitutions. The second tactic is we can alter what we call the food acquisition environment by providing people with more choices. We can provide them with better information to help them make those choices. We can provide them with advice at the points that they make those purchases, in cafeterias and in the grocery stores, and we can essentially provide them with a better menu of selections when they go to vending machines and restaurants.

The third tactic we can use is to alter the nutrition education message that we provide, and if I could leave you with one idea from my testimony, it is that in order to improve America's diet and health it is going to require more research on basic aspects of nutrition as well as on education, but that is not going to be sufficient in order to improve Americans' health. We are going to have to involve all three of these tactics. The second topic that I wanted to discuss with you briefly today relates to priority needs in nutrition research. The Food and Nutrition Board is currently conducting a study of research opportunities in the nutrition and food sciences. The study is jointly supported by the Department of Agriculture, the Department of Health and Human Services, and the Pew Charitable Trusts. Its objectives are to identify the most promising research opportunities in the nutrition and food sciences and to examine the structure and the quality of education and training of researchers in all of the different types of settings in which that training occurs, and to make recommendations to facilitate the applications of our research in clinical and public health policies and programs.

Some of the people that are testifying today are actually members of that committee. Dr. Rosenberg is, for example. We plan to release the report on December 15, of this year, during a symposium to be held in Washington, DC. Because the committee is still working to complete its manuscript and recommendations, I am limited in what I can tell you about its conclusions and recommendations. But what I can do is to tell you that the report will provide in-depth discussions of research needs and opportunities in four areas; basic understanding of the genetic, molecular, cellular, and physiological processes of how diet affects health, techniques for enhancing the food supply, understanding food behavior and how it relates to how diets are selected, people's health and ultimately the diseases that they suffer, and last, ways to improve the diet and health of individuals and populations.

I will plan to send copies of the report to this subcommittee upon its release. I appreciate the opportunity to appear before the subcommittee and to provide you with the findings of the Food and Nutrition Board about nutrition research and education.

[The prepared statement of Ms. Woteki appears at the conclusion of the hearing.]

Mr. STENHOLM. Dr. Rivlin.

STATEMENT OF RICHARD RIVLIN, M.D., PRESIDENT, AMERICAN SOCIETY FOR CLINICAL NUTRITION, INC.

Dr. RIVLIN. Thank you, Mr. Chairman. I am very appreciative of the honor and the opportunity of speaking before you. I would like to make a few key points and ask that my entire written testimony be entered into the record.

Mr. STENHOLM. Without objection.

Dr. RIVLIN. I come to you today as the program director of the Clinical Nutrition Research Unit at Memorial Sloan-Kettering and Cornell. I would like to point out this is a program that is funded by the National Institutes of Health. I would like to begin by saying that it is important in our understanding of the health care process to realize that NIH and USDA both have important roles but that they are different. The role of NIH is to be disease-oriented and of USDA to be food-oriented, and I think it is the smooth interrelations of these two agencies that are very important to our mission. But also and perhaps of increased relevance to today's deliberations I am coming to you as the president of the American Society for Clinical Nutrition, which is the leading U.S. society and perhaps in the world of physicians and basic science investigators who are working on nutrition in disease prevention and treatment, and our society and its members are really leaders in the field. I think the important thing we have to realize is that nutrition is an important aspect of prevention.

We are all concerned with keeping the health care system stable financially, instituting health care reform, and in any issue that involves prevention, nutrition has a very key role. This key role goes all the way from the manufacture of food to its handling by the individual, the processing and the production of waste. Increasingly we are learning that while there are, as you Mr. Chairman pointed out earlier, broad areas of consensus, there are other ways in which this consensus needs to be modified, and the role of our society—American Society for Clinical Nutrition—and the role of our lives as investigators is to emphasize these areas of consensus and also look for the ways to improve this.

I would like to give you several examples of how the role of nutrition and prevention is really so crucial. We have heard from others about low birth weight individuals who represent 7 percent of all births, and we believe that adequate prenatal nutrition and nutritional counseling could reduce the $3 billion to $7 billion that we spend in this area.

Iron deficiency. Iron deficiency has a long-term effect on intellectual development. We cannot allow our young children to be iron deficient. On the other hand, we have a disease in the United States, a disease of excess. In fact, the leading type of malnutrition or bad nutrition in the United States is not so much nutritional deficiency as it is nutritional excess, and we recognize the crucial role of obesity, particularly in childhood. It is astonishing that at least one-quarter of all American children are overweight and of these one-third already have an elevated serum cholesterol, and as you know, the child is father of the man, and the overweight children, the overweight adolescents, and those with the high cholesterol, they will be the overweight and high cholesterol adults of the future.

In addition, we have heard from others about the importance of nutrition in older Americans, and we estimate now that 85 percent of older Americans have chronic diseases that could be assisted by nutritional intervention. So nutrition is important in the sense that we can prevent disease and once an individual is ill, he or she can recover more quickly, so nutrition is involved in every stage of illness, from the initiation—from the prevention of the illness, from the prevention of the complications of the illness, and even the prevention of the side effects of the treatment of the disease.

We also know that calcium is very crucial in the formation of bones and teeth, that we need to build bone mass when we are young, and we need to prevent it from being lost when we are older, and our studies on osteoporosis certainly show how important it is to prevent disease. I would like to say that in this era when there is an increased emphasis upon diseases and health of women and rightly so, certain areas of male health have been neglected with respect to prevention. Of these osteoporosis in males we feel is an area that has been neglected, and our group has just completed a major review of this area.

Not only do we need research, we need education. We need to translate the effects of the results of research into a plan of action. We need to have more research. We need to have more training. We need to support training, and we all need to work together to accomplish these areas. So I would like to summarize by saying that it is a great privilege to appear before you, but I think the thing that you have to keep in mind at all times is that no system of health care reform which intends to reduce the cost of disease can be complete without a crucial component of nutrition: Nutrition in research, nutrition in training, nutrition in prevention of disease, nutrition at every stage of the process.

I hope that the subcommittee will realize that the support of nutrition by the USDA is a very crucial aspect of this process. Thank you.

[The prepared statement of Dr. Rivlin appears at the conclusion of the hearing.]

Mr. STENHOLM. Thank you.

Ms. Schuster.

STATEMENT OF ELLEN SCHUSTER, STATE COORDINATOR, EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM, MINNESOTA EXTENSION SERVICE, UNIVERSITY OF MINNESOTA

Ms. SCHUSTER. Mr. Chairman and members of the subcommittee, I am pleased to be here today to discuss nutrition education, research, and EFNEP, the Expanded Food Nutrition Education Program. I thank Representative Minge for that special introduction. I also ask that my full statement be included in the record, and I will summarize that statement.

I will be focusing on two areas, some specific examples of how nutrition research reaches consumers through the Extension system and the effectiveness of EFNEP. One example of nutrition research currently underway in Minnesota is a project to study the effectiveness of a low fat nutrition education intervention program aimed at adults with low reading skills. Communities of color and those with a lower socioeconomic status and educational attainment are more likely to be at risk for cardiovascular disease.

EFNEP families are serving as the study population for this 3-year National Heart Lung Blood Institute grant received by the school of public health at the University of Minnesota. To date we have been able to assess the reading ability of EFNEP families in three Minnesotan counties. Nine percent read at less than a fourth grade reading level, 30 percent read between a fourth and eighth grade reading level. However, printed nutrition education materials focusing on low fat eating are written at a tenth grade reading level or higher. Thus the results of this project will have implications far beyond Minnesota.

In addition, the above literacy statistics prompted me to develop and pilot a brochure on the new USDA food pyramid last year, and about 26 States are using this piece.

EFNEP and Extension effectively collaborate with other agencies to reach at-risk populations to bring university research to them. Families take charge is a Dakota County project that links Extension and the EPSDT program. EPSDT is the early periodic screening diagnosis and treatment program that provides physical, mental, and emotional screening for children and teens whose families are eligible for medical assistance. A colleague of mine at the Minnesota Department of Human Services who knew the EFNEP program thought that the use of paraprofessionals or peer educators was an effective and cost saving strategy to bring health and nutrition education to families in EPSDT. Using the EFNEP model, this project has hired and trained a health educator/outreach worker and a family mentor. Using one to one home visits, families in crisis are empowered to take responsibility for their lives and the lives of their children. Crisis affects these families in many ways. Family mealtimes are forgotten, which may lead to hungry and ill-nourished children; food may not be handled safely, which may lead to food poisoning, causing illness and more crisis; parents may not focus on prevention of disease, thus accelerating poor nutritional habits.

Based on anecdotal information, the outreach worker has observed that families of color have increased their enrollment in this program.

Extension is bringing the most current research to youth through two different projects, jump in Minnesota and chances and choices with food. We have waiting lists of neighborhood agencies that are interested in implementing our jump in Minnesota program that teaches inner-city youth nutrition, fitness, and leadership skills. Chances and choices with food, a program that trains teen teachers to teach younger children about food safety, is being taught in about half of the counties in Minnesota.

As you know, we are approaching the 25th anniversary of EFNEP. EFNEP's model of training and hiring community or peer educators is effective. EFNEP staff work with families in extreme crisis, but the focus is on what the family is doing right. This is a powerful strategy when working with families who have been told for so long what they are doing wrong or not doing at all. EFNEP staff also link families to community resources they are unaware of or may not ordinarily access. Here are some statements from actual EFNEP participants that speak to the effectiveness of the program.

A single mom states, "I am a single parent who at 21 moved out of my mother's house and didn't know how to cook well enough to feed my family and definitely not knowing how I was supposed to try on my limited budget. The EFNEP program came into my life and not only gave me the confidence to prepare meals but showed me how to budget and plan my diet as well. This program was informative and in my situation it was a necessity."

An EFNEP youth participant states, "I am going to start eating more healthy foods because of what I learned. This class helped me to see what food can do to you."

A mom states, "This class has been very valuable to me in many ways. Though I have three children under school age and find it is difficult to get out, I did not want to miss a single class. This class has really made me think about wise purchasing of groceries, meal planning, and proper nutrition. In my opinion this class should be required for anyone receiving food type funding from our Government."

Mr. Chairman, this concludes my remarks, I will be happy to respond to any questions which you or other members of the subcommittee may have.

[The prepared statement of Ms. Schuster appears at the conclusion of the hearing.]

Mr. STENHOLM. I yield to Dr. Allard for an introduction.

Mr. ALLARD. Thank you, Mr. Chairman. I thank the chairman for giving me an opportunity to introduce to the committee Dr. Jennifer Anderson from Colorado State University. She is associate professor in food and nutrition at the extension specialist department of food science and human nutrition, and, Dr. Anderson, I would like to welcome you to this subcommittee and look forward to hearing your testimony. Thank you, Mr. Chairman.

STATEMENT OF JENNIFER ANDERSON, PRESIDENT, SOCIETY FOR NUTRITION EDUCATION, AND ASSOCIATE PROFESSOR AND EXTENSION SPECIALIST, DEPARTMENT OF FOOD SCIENCE AND HUMAN NUTRITION, COLORADO STATE UNIVERSITY

Ms. ANDERSON. Thank you, Congressman Allard, for that introduction. The Society for Nutrition Education, SNE, commends you, Mr. Chairman, and members of this subcommittee for recognizing the importance of reviewing nutrition research and nutrition education, and most specifically for addressing the linkages that are needed between these activities. We have reached a point in the health of our Nation that requires a stronger and a more permanent link between food production, nutrition, and public health.

As Congressman Allard has said, I am an extension specialist as well as associate professor at Colorado State University, so Mr. Chairman, I, too, come from a very rural State, a very large State where many of the challenges I face in nutrition education and research are much like your own in Texas. Many members of SNE, including myself, are always involved and very actively involved in trying to link agricultural production to the health of our communities by providing effective nutrition education programs.

We are constantly striving to see how we can use research findings and how to communicate those findings to target clientele groups, especially the high risk and needy audiences. But we also want to try to make the messages effective and try to help people understand what they can do to help their own health and long-term outcomes. We recognize that USDA is indeed a leader and we hope that USDA will maintain their leadership role in translating the research into public information that is really usable. For the sake of the future of effective nutrition education, we have identified three priorities.

What I wish to do, Mr. Chairman, is summarize my written testimony into three main points, and I have tried throughout the written testimony to address each of the eight questions that you posed to us.

Our first point is that research and nutrition education have been and must remain linked. We have heard that today from other members of this panel, and Dr. Johnsrud earlier very well expressed the role of cooperative Extension as an exemplary program which is linking nutrition research and nutrition education. These programs are research based and they are unbiased. The key to the effectiveness is the positioning of cooperative Extension service within the land-grant university. The Society for Nutrition Education has many of our members working within cooperative Extension as well as with the expanded food and nutrition education program.

Let me further give an example of how we link this research to application and education. Looking at the role of antioxidants in chronic disease, we have a national campaign to encourage the public to eat five servings of fruit and vegetables a day. Working in the rural isolated areas of northeast Colorado, I am investigating ways that we can try to integrate that information into the classroom. Including methods to help the children through teacher education, through the school lunch, as well as through the community efforts to understand what does that message mean as I go along the school cafeteria, or to the grocery store.

Our second priority is to see an increase in the visibility of nutrition in USDA through improved coordination of nutrition at the national, State, as well as the local levels. We strongly urge USDA to coordinate and raise the visibility of all nutrition activities, the education, the research, and food assistance. This would provide a strong link between agriculture and health. A further suggestion from the Society of Nutrition Education would be to integrate all food assistance programs to assure they are delivering a consistent message and capitalize on each other's success. Standards for personalizing nutrition education components should be enhanced in the food assistance programs we heard described today—WIC, EFNEP, school lunch, child care feeding programs. We must link the food, nutrition, and health consistently with agencies at the national, State, and local level. We need to work together and not in isolation.

Another example is the work within USDA and the new nutrition education initiative moneys, allowing 17 States to explore new strategies in which cooperative Extension will work with WIC clientele. Colorado is fortunate to be one of those States, and I look forward to investigating new strategies and avenues to bring better nutrition education material that really helps the individual know what to do when they are trying to feed their family on a very limited budget. This has tremendous opportunities for success.

Finally, SNE asks for your support to look at research priorities in nutrition education. Three types of research, we believe, are needed for effective nutrition education. Basic research on the nutrition-related behaviors so we understand why people behave the way they do, why they eat those foods, why they buy those particular foods at the supermarket. Second, we need research to help us develop better strategies for implementation in order to change knowledge and behavior. We know nutrition education can change knowledge. We have some data to say it changes some attitudes, some data to say it works on some behavior, but we need more money to really show what is the best way that we should approach this to get the information to where it is needed. The third research priority is for policy research, as an example: What effect will changes in the new food label make on consumer food choices.

For effective dietary guidance there are four dimensions, we believe, in the process. Obviously, there is diet and health, but research beyond just nutrient requirements, and dietary guidelines. I applaud the efforts that we heard this morning of looking at revisions and updates to keep it abreast of the current research. For dietary guidance, the tools and the systems, as well as looking at the research for consumer food choices is needed. We need research at each stage.

The Society for Nutrition Education certainly appreciates the leadership this subcommittee has given to nutrition over the years. With your continued support, the health of Americans can be improved. We must strengthen the link between nutrition research and nutrition education, increase the visibility of nutrition in USDA and support research which helps all Americans choose food that promotes health.

Thank you, Mr. Chairman, for the opportunity of being here today and addressing you.

[The prepared statement of Ms. Anderson appears at the conclusion of the hearing.]

Mr. STENHOLM. Thank you, and thank each of the panelists today. Have any of you in your work had any experience with some of our producer check-off programs and some of the research funding that is now being made available through check-off programs?

Ms. ANDERSON. I personally, Mr. Chairman, have been able to work with the Colorado Beef Council and have received, through grants, some of the money directly from the food check-off program. It has allowed us, for example, to develop nutrition education materials and posters for food service operators and also for work sites where people gather and congregate to eat. That program and four of the 24 posters we developed are now being used by the National Livestock and Meat Board nationally to see how we can provide nutrition education without always having a direct educator to reach the clientele. We have to look at creative ways so, yes, I personally have been involved and many other members of SNE have also benefited from that check-off program.

Mr. STENHOLM. Dr. Rosenberg.

Dr. ROSENBERG. We have at the Human Nutrition Research Center on Aging, we have interacted with some of the National Dairy Council activities with respect to research on the effects of dairy products as sources of calcium and vitamin D for maintenance of bone health and strength.

Mr. STENHOLM. Dr. Nichols.

Dr. NICHOLS. We have a major program funded by the Soybean Council. There are some anomalies concerning cholesterol metabolism in populations that are fed soy compared to those that are fed milk protein, and this major effort is to understand how cholesterol is synthesized and how it is handled in a population fed soy as a protein source versus other protein sources.

Mr. STENHOLM. Dr. Anderson, you made the comment that the Society of Nutritional Education strongly urges USDA to coordinate and raise the visibility of all nutrition programs and further integrate, see that we are not working in isolation. Also you made a comment along the same lines that Dr. Nichols included on page 14 of his written statement, which is the basis of the question that I just asked during the follow up, and that is where you say farmers and ranchers now more than ever know that they must produce food that will meet the consumers needs. They have seen their markets buffeted by the winds of public opinion, often fanned by musings of people who are heavy on opinions and light on facts.

The mission of USDA is to find facts and to use them to help both producers and consumers of food. If I need a one-paragraph reason for why this hearing is being held today, that is it. From the producing side we are just constantly buffeted by opinions, not necessarily based on consensus of fact, but based on fact as someone perceives it at a point in time. I have felt very strongly in the necessity of increased coordination between producers and consumers and have not been willing to cede the consumer representation to self-appointed experts, that I consider those of you at this table experts in the field of nutrition or you would not be here. You wouldn't be in the job that you are in. You understand the complexities of the subject before you. You understand that all the answers are not in, that research is necessary and continuing to find new areas, you also understand the importance of education.

You hear this general theme, but somehow, some way we are losing, and I use that term loosely, we are losing the public opinion battle to the tabloid TV, to the instantaneous sensationalism of whatever issue happens to be front page at the time, whether it is somebody finding a hypodermic needle in a Pepsi Cola can or whatever it is that happens to come, and then all of a sudden we find, as Paul Harvey says, the rest of the story usually comes later after the damage is done. But in the case of nutrition, it has to be based on the best science available. Each of you on your own in the written statements have indicated the absolute necessity of coordination of effort and of continuing to try to improve our educational effort, and that, too, is an ongoing science. That is why I asked the question. There is a lot of excitement among the producing segments of our society today of finally coming to recognize that the consumer is always right, but if the consumer's opinion is not based on the best scientific fact available, that being right may also be wrong, and that is the challenge that we have.

Dr. Rivlin.

Dr. RIVLIN. I would like to comment. I think you have made a number of very telling points, and perhaps one mistake that the nutrition community has made as a whole is that we tend to tell people what not to do rather than what to do, and more and more we should emphasize the positive aspects of our message. It is not "don't do this; don't do that," but "take more fruits and vegetables, take a diet that is better" to show them that they can eat and also enjoy the food.

Mr. STENHOLM. I will yield to Dr. Allard, then I want to have another round of questioning myself with the panel. Dr. Allard.

Mr. ALLARD. Thank you, Mr. Chairman. I would like to talk a little bit about how you get this message to people. I am a veterinarian so I try to learn how to keep instructions simple and straightforward and so sometimes we write a prescription for a dog called Fifi and say give one tablet three times a day at 8-hour intervals and it never gets taken at 8-hour intervals, and sometimes they are so careless with the labeling of their medication that the owner themselves end up taking the medication. They get it confused with their own, and so—I see this problem with labels on meats or foods in general.

Are we better off to kind of take the food group approach where you teach people an education process, basically the five food groups and the general concepts in balancing your diet or do we get involved with labels where we have a lot of technical jargon, cholesterol, and fats and protein and we have digestible and undigestible protein and get into all that? I would like to have you comment on that a little bit if you would, please.

Ms. ANDERSON. If I may comment first, I would say that I think we have made great efforts recently to try to communicate the tenets of the dietary guidelines which are telling the public eat less fat, eat more fruits and vegetables, look at the sodium you are consuming. With the food guide pyramid we are now trying to put into action those dietary guideline recommendations. As a nutrition educator, that is the sort of effort we applaud. We never want the public to think of food as good and bad. As the chairman has rightly identified, there is paranoia which I encounter daily. People will call me from physicians to professionals to the consumer, asking what do I do, and what will I get if I eat a particular food.

I think the food guide pyramid and the new labeling regulations will fit in very well. The public have heard us say 30 percent of calories from fat. Well, that doesn't mean anything. What does it mean when I go into the supermarket and put foods in my cart? What it means is to balance out each day. See, you get foods that look like the pyramid, it is not avoiding fat, it is not avoiding your favorite foods, but it is making selections and choices that allow you to put foods together. I think we are doing a much better job, but what we need is to enhance our efforts to see how well we are doing at communicating that information, and then evaluating it.

I think it is better than it has been. We need to keep this linked together and integrate information and put it into meaningful educational messages. It is not black and white. Nutrition science is not black and white. We do have distinct recommendations, and I think that is what makes our field exciting because next year I may be talking about something very different in terms of nutrition science and what does it mean to me as an educator.

Mr. ALLARD. Where is the best place to get that message out, to go to our schools or do we target food stamp recipients?

Ms. ANDERSON. I think we need to investigate all channels, from schools to worksites to community channels, using the media, using anything we can as long as the message is consistent. The people who are self-professed nutritionists, if you will, who wish to go out and either sensationalize an issue, look at something as discreetly black and white, good or bad, they are the ones that put out bad messages or ineffective messages. What I do personally and what many members of the society urge, is to work with media. We have been working, as you know, in partnerships, to try to get out messages through a medium that people relate to.

We have recently used Saturday morning TV as a way of trying to get accurate nutrition information within the Saturday morning cartoons so children are not just bombarded with only food advertising but rather nutrition education information.

Mr. ALLARD. At least in the State of Colorado a lot of the school board curriculums are set up by local school boards, and I see that they have taken out courses and teach young students how to cook and sew and everything like that, and I think both men and women need to have that training in today's world, and how do you get that message to those policymaking groups at the local level?

Ms. ANDERSON. We need to recognize that nutrition is a science. It is not something that goes into just home economics, it fits into science curriculum, it can go into math, it can go into reading. I also would encourage at the Federal level that there is greater cooperation between the U.S. Department of Agriculture and the U.S. Department of Education. NET dollars provide such an opportunity to impact the curriculum nationally, State, and then at the local level. You are absolutely right, Congressman, that we do have a dilemma as we are looking at a reduction in some of the curricular activities, but nutrition has to be recognized at all levels to make sure that the message is consistent and available.

Mr. ALLARD. Thank you, Mr. Chairman.

Mr. STENHOLM. Is there a problem between the educational institutions of America and the coordination of nutrition education information? Can any of you cite specific examples of where, I think what I heard Dr. Anderson say, there is need for better coordination; several of you used that in your written testimony. Can you give me an example of where perhaps right now we have a cross purpose happening? Dr. Woteki.

Ms. WOTEKI. I might respond to that by emphasizing one of the points that I made in my testimony. I think that there are examples where we are perhaps working at cross purposes. One would be the educational message that we deliver in the classroom in elementary and secondary schools and the food that we are actually offering to students in the school lunch program. The point that I had tried to make is that nutrition education is extremely important, and a research base that will help us to actually understand what types of education will actually affect behavior is something that we absolutely need to do, but even if we had that information and we put people in the situation where they can't then act on that information, whether it is the cafeteria food in a factory or a vending machine, it does not supply individuals with the healthful choices that we are going to be ineffective in improving ultimately the American people's health.

Mr. STENHOLM. Do any of you really believe anything short of genetic engineering that we are ever going to have children born that are going to like spinach, vegetables, carrots, and broccoli? No matter how much we educate them? Don't answer that. I was just a little facetious there, but we all know that if you have been around kids or raised them or been in schools you know that that is always going to be a practical problem, but not a reason for not pursuing what we are talking about here. I think one of the most exciting aspects of today's hearing and the testimony and the suggestions that you make is the relationship with public health, nutrition and public health, and as we begin the debate in September on the health system reform necessary in this country—over and over and over again you see preventive health makes sense.

The problem is the up-front costs. Whatever you do up front tends to cost and therefore becomes a budget problem. The long-term investment that turns out to pay dividends is a constant political problem for us, but I don't think there would be any disagreement. In fact, I see in most of your statements you emphasize the importance of better nutrition, of targeting scientific research to find some of the answers in a better way, to seek a better balance in what a balanced diet should look like, it has been fascinating to me to see some of the research. We talk about the fat content. We will hear from a witness later in the next panel that has done some interesting work regarding fat content of milk and a completely different conclusion in some aspects than some other research that has occurred. Constantly changing. One of the frustrating things for the political system is where we have scientific information leading to separate but coequal solutions. But are there any suggestions on how we could improve the level of nutrition expertise that physicians receive? Dr. Rivlin.

Dr. RIVLIN. Well, that is music to our ears. I think we absolutely have to support nutrition education. Dr. Eleanor Young, whom you will hear later, has been a pioneer in nutrition education—she herself leads one of the Nation's most successful nutrition education programs, has received awards and has really emphasized taking a leadership role in this. The future of our Nation is going to depend upon the education of physicians in the field of nutrition. It is sad to say that only about a quarter of the Nation's medical schools have required courses in nutrition, and I think that is a tragedy.

Mr. STENHOLM. Twenty-five percent?

Dr. RIVLIN. Only 25 percent of our Nation's schools have nutrition as a required component of the curriculum. Even though we all eat—some wisely, some not too well—we do not educate our physicians in the field of nutrition. At our own medical school we ourselves have introduced the first required nutrition courses, and we are only one of 25 percent. I think one very important role that the USDA could have would be to support nutrition education in medical schools, and also fellowship training in nutrition as a specialty so that a young physician would choose the field of nutrition as against gastroenterology, endocrinology, cardiology. I think these are very important areas in which the USDA could make a very major significant and permanent impact.

Mr. STENHOLM. Dr. Rosenberg.

Dr. ROSENBERG. I would also add that the concentration on the importance of nutrition and health in which the USDA and this subcommittee are taking leadership are going to cause us, I believe, to incorporate that kind of challenge in the health care reform process that you described is going to begin in earnest in September. Although I have been involved in three medical schools in trying to enhance the quality of nutrition education for medical students and physicians-to-be, I believe there has to be a very important element of change in guidelines of practice. We need to establish guidelines by which our physicians are actually practicing medicine and practicing preventive care, and nutrition is going to be an extremely critical aspect of that.

Nutrition is not at the present time adequately involved in even our concepts of preventive care in health care practice. I believe we need to do both. We need to educate our students, but we need to have them graduate into careers in which nutrition is used actively in preventive medicine and health care. We need both, and I think that this kind of emphasis on the importance of nutrition and health with this kind of leadership needs to become an integral part of that discussion.

Ms. ANDERSON. May I just add, Mr. Chairman, one other point. I don't think it should stop there. I think we need to educate physicians to recognize when nutrition educators and qualified nutrition personnel should be brought into the health care team. I think that is a key element here, not only educating a physician in medical school, but allowing them to understand when nutrition education and qualified nutrition personnel should be working with them as a viable health care team member.

Dr. BIER. As a former member of the faculty of one of the 25 percent of medical schools that have a required nutrition course, I have to say that it required an extraordinary effort to extract a few hours of educational time from the surgeons and other specialists who all claim that they don't have enough time to teach their own disciplines. If we are going to link nutrition health with health care policy, I think it is absolutely crucial there has to be some message which comes down that says we must educate physicians in nutrition, to educate them at the pregraduate level and to educate them through their postgraduate training programs and to have the boards incorporate nutritional information within the material that they are required to learn.

Mr. STENHOLM. I can't help but observe, having been involved in this health system reform effort for the past 2 years, there is a very visible reason why we have this today. We have evolved into a nation of specialists and you just used the word, specialists, where everyone tells us, almost everyone, tells us, the Congress, that we really need to have three general practitioners for every one specialist. We have almost the opposite.

It shouldn't surprise anyone that if we have a nation of teaching hospitals, teaching institutions that are turning out specialists because that is where the demand is, that you are going to have that kind of a situation.

It shouldn't surprise anyone why, in a world of specialists, that a subject as mundane as nutrition would not find itself with very much popularity. That is part of the change of our health care system that is going to have to occur. It is going to be very difficult, going to be very slow, but if we are going to achieve what is necessary in cost containment, we are going to have to look at that.

We have gone so far as to suggest that any institution that wants to continue in the current pattern is absolutely free to do so, but do it with your own money, that Federal-subsidized dollars might need to be going to those that recognize a more balanced curriculum. It tends to make people nervous and upset for a brief period of time.

Dr. Rivlin.

Dr. RIVLIN. You have touched on a number of important points, and I just wanted to say briefly that I think we need two things: First, we need to have more nutrition for every physician; questions about food and nutrition are among the most frequently asked of physicians regardless of specialty. Everyone needs some nutrition.

Second, there also needs to be a recognition that there are certain special areas where expertise in the field of nutrition is needed and for this reason nutrition also needs a specialty designation.

In addition to that, I would like to reinforce what we heard earlier that physicians also have to know the proper place of dieticians who are certified and are experts in that area. So we need to know how to use them most effectively.

Mr. STENHOLM. So very true.

All of us can be guilty of overspeak and oversimplification and I just was. But it is in that spirit that these hearings are trying to give us a little bit of a foundation on which way the Agriculture Committee can go to be of help in this area.

I couldn't agree more with Dr. Anderson, your statement. USDA should face up to a credibility issue by changing from production orientation to one which gives equal emphasis to consumer and public health concerns.

It has been very difficult for those of us on the producing side to come around to agreeing to that, but I think most do. There is still a lot of nervousness about it out there because of the generalizations by so many. Dr. Nichols, you pointed out the public polls. But that is why I asked the first question regarding producer funding. I happen to believe, as a producer, we are going to need to fund higher priority research areas in nutrition, at least provide the seed money as producers, to challenge the State and Federal entities to put the dollars where the higher priorities are.

I hope we can continue the dialog between those of you assembled and others as we try to build these support groups, or whatever you might want to call it, of credibility teams or whatever it is that can challenge some of these public opinion experts that put their finger in the wind and decide, "This is a popular issue, and we can raise a couple million bucks," which is not helpful to anything that anybody here has talked about.

But it is the real world we have to deal with. They are not going to go away. It is a free country. But by the same token if we are going to be successful in maintaining the food production system we have, we are going to have to do a better job in areas of research, education, than what we are doing today.

Dr. Bier.

Dr. **BIER**. Just for the record, even though we were discussing physician education, I would like to just say that I think all of us at this table would support the fact that we mean health professional education, nursing schools, physical therapists, rehab, physician assistants, and all those programs as well, not just medical students.

Mr. **STENHOLM**. Let the record show that the heads of everyone at the table were shaking affirmatively.

Thank you very much. We appreciate your attendance. We thank you for the future input that you will have working with this subcommittee as we try to make some sense out of this and move us in a more positive direction.

We thank you for your time and attendance today.

We will call the next panel and I prefer you call the first witness, Mr. Allard, since we are under time constraints. I will go vote and be right back.

Mr. **ALLARD** [assuming the chair]. Panel 3, if you would come to the table, please. We will go ahead and proceed. I would like to call first on Dr. Stanley Schuman.

STATEMENT OF STANLEY H. SCHUMAN, M.D., SOUTH CAROLINA AGROMEDICINE PROGRAM, DEPARTMENT OF FAMILY MEDICINE, MEDICAL UNIVERSITY OF SOUTH CAROLINA

Dr. **SCHUMAN**. Yes, sir. Thank you for inviting me. I request that my written comments be put in the record.

Mr. **ALLARD**. Without objection, so ordered.

Dr. **SCHUMAN**. I hesitate to read them knowing that you people are so literate and articulate that I feel almost illiterate in this distinguished group.

What I would like to say is that I am from a program in family medicine from South Carolina, a State which was poor before it was fashionable for other States to be poor.

We have had to manage with very limited resources. In our State we have managed since 1984 to develop a linkage between Clemson, the land grant college and the Medical University in Charleston, South Carolina.

We did this with a very small line item funding of I think less than $200,000 the first year in 1984. We have survived from year-to-year based on a constituency largely of primary care physicians, farmers, consumers, and Farm Bureau, Women in Agriculture, and support groups like that have kept this alive as a clinical consultation service and public service orientation.

We have found that this teamwork can operate effectively not only in food quality and food safety, but in other areas broad based in prevention of occupational hazards on the farm, including skin cancer and premature hearing loss, and family farm stress.

So we operate as a preventive medicine arm linked to the 46 counties. Our main focus has been the busy overworked primary care physician, and as I heard the testimony today, I heard about 12 different agencies all trying to reach target groups through specially designed programs.

In our 46 counties and little communities in South Carolina, there is generally only one person or with one group of practitioners whose services encompass the teenage pregnancy, the poor people, the elderly, the infants, and school children, the overfed rich people, the bulimia patients—they should have been mentioned to this subcommittee—the nationwide epidemic of bulimia has not been mentioned and it should be. This is a major problem as well as obesity.

The person who sees all these subgroups in our community is the primary care family physician, the pediatrician, and internist. If you want cost-effectiveness as an agent of change in the community, if you must raise the level of awareness of nutrition's latest advances to the primary care physician. Then you would reach all these 12 or 15 groups.

So my concluding statement is that if the busy physicians can be updated in these areas, it is just as vital as patient's access to the physician. I agree with Dr. Rosenberg, by that we mean, the physician and his extended team including the nurse, access to nutritionists, to the hospital, and to the home economics adviser and to whoever else is a resource in the community.

I would like to conclude by saying that if we have one recommendation, it would be for more family primary care physicians of the type who want to go to rural areas and want to be involved in caring and preventive services, not only to farmers and farm families, but to consumers.

[The prepared statement of Dr. Schuman appears at the conclusion of the hearing.]

Mr. ALLARD. Thank you for your testimony, Dr. Schuman.

I might add, before I call the next witness, that in my district there is a young—small town actually started to sponsor a few promising young members of this community to get into family practice and they just started, so we will wait and see the results of that program but we have to look at those approaches.

Next we have Dr. Brittain.

STATEMENT OF JERE A. BRITTAIN, COORDINATOR, INTEGRATED PEST MANAGEMENT AND AGROMEDICINE, CLEMSON UNIVERSITY

Mr. BRITTAIN. Thank you, Mr. Chairman. I represent the agricultural part of the agromedicine initiative in South Carolina and have been closely associated with Dr. Schuman in this initiative for 7 or 8 years now.

I would like to mention in an anecdotal way, a young physician named Oscar Lovelace, in family practice in a small rural community of Prosperity, South Carolina. Oscar grew up in Columbia, our State capital, but when he was a youngster, he frequently visited his grandfather's farm at Prosperity and eventually had the opportunity to show a dairy calf and the calf became a cow, and eventually Oscar showed the State champion Guernsey cow. He was very proud of this cow and her picture hangs in a conspicuous place in his office.

He says that experience induced him to establish what is now a thriving family practice in Prosperity; that 4-H project and that cow.

Dr. Lovelace incidentally is a protege of Dr. Schuman; Dr. Schuman was his preceptor at MUSC.

About 3 years ago as part of a Kellogg funded phase of the agromedicine project in South Carolina, Dr. Lovelace provided space in his office at Prosperity for nutrition specialists from Clemson and Winthrop Universities to offer nutrition information and counseling to his patients. I think Oscar is an excellent example of a new model of primary care physician who is approaching the health of his patients in a preventive and holistic way.

Oscar is one of the agromedicine advisory physicians who have been identified in all 46 counties of South Carolina who are available to consult with the county Extension office on health issues.

I would like to comment a bit now on the value, from a cooperative extension standpoint in agriculture and economics and 4–H, of having access to the medical community. During the Alar controversy a few years ago, we, as cooperative extension people, were besieged with phone calls from concerned parents, physicians, and school people asking, is it safe to eat apples?

I think it is impossible to estimate the value of having access to Dr. Stanley Schuman, an epidemiologist and nutritionist to reply to these concerns in a calm and science-based manner.

Dr. Schuman has developed a unique agenda for physicians as well as farmers in our State. He probably has more name recognition across our State than anybody in Extension.

The core of his message is that our safe, abundant, and affordable food supply should be recognized as a cornerstone of health promotion. He collaborates with a wide array of faculty, ranging from agricultural production people to nutrition to youth faculty.

I think our academic programs at Clemson and MUSC have been influenced by the agromedicine program. A rotation in agromedicine is available to medical students at MUSC and we have attempted to integrate this model at Clemson in some of our graduate degree programs. The faculties share a strong interest in teaching interdisciplinary and preventive approaches to pest and disease management. This involves using pharmaceuticals or pesticides in a minimal way, and in the context of the general health of the family or community.

I think the cooperative Extension system and the entire land-grant system are in the midst of reexamining and redefining its role at the national, State, and local levels. Consumers and environmental organizations have established themselves as stakeholders in the food production system as has been mentioned before.

Agricultural production and processing groups have begun to acknowledge that consumers have a legitimate interest in how food is produced and in land and water stewardship.

I think this process of consensus seeking will be well served by close collaboration between the land grant and medical universities.

As we travel together to every corner of the State, Dr. Schuman and I have often shared the thought that agriculture and medicine is in the same business, namely human health. I have attached as exhibits 1 and 2 to my prepared statement, comments by two of my colleagues regarding the EFNEP program and the nutrition education program in South Carolina, and would like for these to be recorded as part of my testimony

Thank you for this opportunity.

[The prepared statement of Mr. Brittain appears at the conclusion of the hearing.]

Mr. STENHOLM. Without objection, they will be placed in the record. Thank you.

Next, Dr. McCarron.

STATEMENT OF DAVID A. McCARRON, M.D., PROFESSOR OF MEDICINE, OREGON HEALTH SCIENCES UNIVERSITY

Dr. MCCARRON. Mr. Chairman, members of the subcommittee, I want to express my appreciation for the invitation to testify today. I am a professor of medicine at the Oregon Health Sciences University, and while I am not formally trained in the nutritional sciences, my comments reflect the research experience from my directorship of one of the national institutes of digestive, diabetes and kidney diseases' clinical nutrition research units, and as the chairman of the National Kidney Foundation, council on hypertension.

At a time when we look toward sophisticated molecular biology to provide the next medical breakthrough, I refer to nutrition research as exploration of the low-tech solution we can all "live with."

I would pose to the committee the thesis that after communicable diseases, nutrition holds the greater potential to increase life expectancy by reducing the incidence of common medical disorders. A decade ago at a time when various Federal and voluntary health service organizations were saying that salt restriction was the only viable nutritional intervention to prevent hypertension, I and my colleagues at Oregon initiated a series of studies that suggested that that was too simplistic a public health approach. Today the high blood pressure research community knows that was the case.

Our earlier work now backed by extensive but still incomplete experience has led to the concept that a lack of several minerals in the diet is the primary nutritional issue for individuals at risk of high blood pressure. The minerals are calcium, potassium, and magnesium which are underconsumed by populations who are at risk of high blood pressure in this country. Those include the elderly, African–Americans, the obese, heavy consumers of alcohol, and young pregnant subjects.

The dietary source that has been identified for these minerals that is lacking in the diet is not surprisingly dairy products which do provide 70 to 75 percent of our daily exposure to calcium, 30 to 35 percent of the potassium, and 20 to 25 percent of the magnesium.

Furthermore the association of linking salt and blood pressure with dietary intake of these minerals is sufficient.

How could we have so badly missed the mark on what seems to be such a simple issue as a saltshaker?

I would contend that we pulled the trigger on setting public policy and nutrition education goals before we executed the proper nutritional studies. Nutrition education is an appropriate critical public health measure, but it is only as good as the science that supports it.

Think about the information paradox we have developed here. Dairy products, for decades often labeled as unhealthy because of perceived adverse effects of their fat content on cardiovascular risk.

They turn out to be the food source whose consumption has been most consistently linked to a reduced risk of hypertension—hypertension, after cigarette smoking, the most important risk factor for heart disease in this country.

There are now a variety of national health institute initiatives underway which are extending these observations, they include the young pregnancy subject where reduction in blood pressure has been linked to a 40 to 50 percent reduction in low birth weight prenates, African-Americans whose incidence is three times that of other groups, salt sensitive subjects who do not have to restrict sodium as long as these minerals are included in their diet, hypertensive subjects already on medications, 40 to 50 percent of whom may be able to come off of expensive drugs.

Just the findings from the pregnancy trial alone could yield several billions of dollars a year savings if prematurity drops as dramatically as postulated by the leaders of that trial.

An important factor that stimulated the advances in this area of nutrition research was the funding from the dairy industry which provided much of the initial resources. Without that commitment, the evolution of the data base and the recruitment of other investigators and funding supports from NIH and USDA would not have occurred.

That experience speaks cogently to the role of the agricultural commodity groups must play in underwriting future nutrition research in this country if we are to experience similar nutritional breakthroughs for other common medical disorders.

Supporting the research without conveying the findings to the consumer, however, means no public health benefits. In this era of minerals and blood pressure control that is unfortunately the case, as the dairy industry has not fully informed either consumers nor health care professionals about these advantages in nutrition research.

The first step in that direction was actually taken last year when the National Heart Lung and Blood Institute issued its fifth report on the "Joint National Commission of the Detection, Evaluation and Treatment of High Blood Pressure in America." That document added to its preventive recommendations the need to maintain lifelong dietary potassium, calcium, and magnesium intake as protection against high blood pressure.

Based on our experience in Oregon, if there is one message I would like to leave with you today it is this country must get serious and acknowledge the impact that nutrition has on the health of all of us. I believe the process in improving nutrition education and research and linking it to other organizations is an important task that the Department of Agriculture needs to foster.

I would suggest five simple recommendations, first and foremost, expansion of the USDA's efforts in the area of health needs to be a priority.

Second, means a commitment to the fiscal support of coordinated research and education.

Third, there is no way to avoid the most costly and challenging type of human research that is the study of humans who also happen to be the most difficult experimental animal to deal with.

Fourth, the Department must focus on foods and not single nutrients in supporting research and integrating the results and communicating the results to all segments of society.

Finally, the marketing efforts of various commodity groups that USDA has oversight must be tied to targeted scientific research. I would argue that advertisement about an agricultural commodity that does not inform the consumer about the nutritional benefits only serves to employ copy editors and does little to sustain the agricultural foundations of our society.

Again, I wish to thank you, Mr. Chairman, for the opportunity to testify and I will be pleased to answer questions.

[The prepared statement of Dr. McCarron appears at the conclusion of the hearing.]

Mr. STENHOLM. Thank you.

Dr. Young, let this Red Raider be the one to welcome you here from the University of Texas.

STATEMENT OF ELEANOR A. YOUNG, PROFESSOR, DEPARTMENT OF MEDICINE, DIVISION OF GASTROENTEROLOGY AND HUMAN NUTRITION, UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT SAN ANTONIO

Ms. YOUNG. Thank you very much, Mr. Stenholm, and other members of the subcommittee. I thank you for the opportunity to testify before this subcommittee on the linkage of nutrition as related to research and education.

I am Dr. Eleanor Young, from the University of Texas Health Science Center at San Antonio. I am not a physician, I do hold a doctoral degree in nutrition from the University of Wisconsin, but for the past 25 years I have been involved in the clinical department of medicine at our university.

I would like to ask that my statement be placed in the record and I would briefly summarize the key points in that statement.

I would like to focus specifically on the linkage between nutritional research and medical education and practice because physicians are essential in that linkage and because, up to the present time, this linkage has not been as strong as it should be.

On the panel just before us we heard a few comments relative to this. The first question I would like to raise is what is the evidence for the role of physicians as related to nutrition, health, and disease? The evidence is overwhelming. Certainly it is documented in terms of the application nutrition, treatment of disease, prevention of disease, and promotion of health.

In my estimation, it is no longer an option, it is essential for all physicians. Today, nutrition is an essential consideration of the overall medical care of every patient, and thereby is a responsibility of their physician. Thus, it is incumbent that basic nutrition principles be integrated in medical education. Every physician is held responsible for the appropriate application of nutrition support in the care of patients, as well as in the prevention of disease, and promotion of health, not just the treatment of disease, but also promotion of health.

This strong stance is based on several sources of evidence briefly summarized here.

For example, the Surgeon General's report, "Nutrition and Health," which has been mentioned several times today and the Food and Nutrition report "Diet and Help: Implications for Reducing Chronic Disease," these two documents alone include several thousands of published research foundations providing evidence for the central role of nutrition in health and disease.

We can no longer ignore the fact that of the 10 leading causes of morbidity and mortality in the United States, our diet plays a direct or indirect role in at least eight of these.

Other overriding emphasis includes "Healthy People 2000: National Health Promotion and Disease Prevention": One of the objectives was "to increase to at least 75 percent the promotion of primary care providers who provide nutrition assessment and counseling," and that definitely is important.

The evidence from several studies suggests that only about 25 to 40 percent of physicians currently provide such support for their patients. Additional evidence is supported by Public Law 101–445 passed in 1990 that gives a mandate that "students enrolled in U.S. medical schools and physicians practicing in the United States have adequate training nutrition."

This law also provides a clear mandate that all physicians are responsible to see that nutrition care is an essential component of overall medical care of every patient, thus enforcing my comment earlier that this is no longer an option.

A final point of evidence I think is not only that appropriate nutrition support may lessen but also in some cases prevent the pain, sickness, disease, or trauma associated with disease, but may also be cost-effective, lessening significantly the economic burden on patients and thus on the total health care of the United States which right now is a very prime consideration for all of us, given the overwhelming evidence as briefly outlined here that physicians do indeed have a professional mandate to provide nutrition education and support for their patients.

The question now at this moment in time is why has the academic community generally failed to accept this challenge?

According to the most recent documentation that I have, mainly from the American Medical Association, it suggests that only 24 to 25 percent of all U.S. medical schools have any required nutrition course, a comment that we heard earlier. About twice this number of schools do have an elective in nutrition but evidence also shows that most students do not select these electives.

So consequently today at most about 60 to 70 percent of students graduating from U.S. medical schools will graduate without knowledge, even basic knowledge and understanding of nutrition assessment and support for patients. They will not recognize the significant impact this has on both individual patients and on the health care of people in the United States in general.

The barriers to this situation are many, numerous, and significant. I think most of you have already received a copy of the excellent document Nutrition Education for Physicians which was just published this year, and at the request of Health and Human Services, and was circulated to HHS.

I assume the members of this subcommittee have reviewed that document. Some of the key barriers on the top of my list are, first of all, we have a vacuum in creative leadership, leadership at the academic medical school level and also at the Federal level.

Second, competition within the medical curriculum. An overwhelming knowledge base has continued to expand and must be continually whittled down to fit into the 4-year timeframe of medical education and is expected to be learned within the same timeframe as we had 30 years ago, but now with an increasing amount of information.

Another barrier of course is failure of medical schools to recognize the essential role of nutrition, a fact we all recognize now. Also, the competition within the medical schools, not just for curriculum time, but for funding of nutrition is a significant barrier.

There is a lack of viable reimbursement for nutrition care in the system. Currently nutrition counseling, treatment, and management of disease, as well as prevention of disease and promotion of wellness, is generally not reimbursable even though prevention of disease is cost-effective compared to the expenditure of trying to reverse disease after it is well established. The practice of medicine has not thus far turned this around.

There are a lot of possible alternative initiatives that could be taken in terms of trying to enhance nutrition education by physicians.

I have seen the red light go on, so it is time for me to stop.

Basically there are many steps that should be taken. We need a stronger recommendation for a central coordinating board, Government coordinating board. Right now this doesn't fall within the direct realm of any one of the Federal Government agencies, so somebody needs to try to coordinate the efforts in this regard.

I think we may need to generate financial support from industry, perhaps maybe a tax break to industry to provide a lot of support. We need adjustments in the mechanisms of reimbursement so wellness and promotion of health is included, which now it is not.

We need to increase the number of nutrition questions on the national medical boards because that obviously would be a way to encourage medical schools to support nutrition more.

Also there needs to be a greater ability of physicians who can respond to the public. A lot could be said about that.

We need to have a more exploratory and relevant questionnaire for monitoring nutrition in the medical schools. We need a whole new approach, not just the hours that are taught in nutrition education, but we need to know more of the concepts and achievements of nutrition education for physicians. We need to provide perhaps funding to establish a chair, perhaps matched by medical schools to help, contributed to by Government or by business, that could help to fund this.

In conclusion let me just try to summarize briefly that there is overwhelming scientific evidence that supports the essential role of nutrition education and practice by every physician.

Second, the application of nutrition support for patients by physicians definitely is no longer an option.

Third, unfortunately, most physicians—approximately 60 percent of all our students who graduate from U.S. medical school today—have not been adequately trained in nutrition to support patients in the treatment and prevention of diet-related diseases.

Fourth, therefore, to date most physicians have not been successful in providing that kind of nutrition care because they have not really been educated to this essential aspect of medical care and they don't recognize or appreciate its impact on decreasing disease and promoting health.

Finally, now in 1993, the application of the nutritional research linked to patient care is definitely no longer an option and the time is right now.

Thank you.

[The prepared statement of Ms. Young appears at the conclusion of the hearing.]

Mr. STENHOLM. I thank each of you. I always like to ask the last panelist in a hearing like this the first question, have you heard anything stated by somebody today where you wished you could have answered the question, or has somebody made a statement that irritated you so much that you would like to correct the record?

Ms. YOUNG. I could have added to the last discussion in the last panel about nutrition education which I think I just have. So that is sufficient, I think.

Mr. STENHOLM. Thank you.

Dr. McCarron, I would ask you this question and want each of you to comment: How can we avoid the stigma that often goes with industry-sponsored research? Dr. Young, you recommended it. If industry pays for it, it is immediately suspect, it seems. How do we avoid that?

Dr. MCCARRON. First of all, I think that is an excellent question, Mr. Stenholm. I would say also yesterday in a casual conversation at the USDA, the first statement from the individual was, but your research was largely supported by the dairy industry. So that problem rests even within the agency I think.

My answer to that 9 years ago when interviewed live on CBS Morning News after a paper was published in Science about our work, the implication was, can we believe you?

My answer then remains as it was and is today, the data is the data. The scientific process allows for ways to check on the outcome of research. The source of funding makes no difference whatsoever.

Mr. STENHOLM. Dr. Brittain.

Mr. BRITTAIN. Mr. Chairman, I think part of the answer in responding to the notion that if something is industry-supported, it is therefore biased, would be for the industry to support research and education activities through foundations that are independent of the industries.

A lot of large corporations do that, such as the Kellogg Foundation, and I believe that that would be one way to buffer or put distance between the industry and the recipients that receive research supports.

Ms. YOUNG. I think, also, that the responsibility for health care, especially for physicians, is not just to be funded by the Federal Government but everybody in the United States; all industry and business also can profit by that. So why shouldn't they contribute to it?

So there may be ways that industry and business perhaps could give funding to support nutrition education in medical schools, without necessarily it being acknowledged as being supported by so and so, or whatever particular industry or business.

In other words, they give a donation to a nutrition foundation or scholarship fund, and dispersed with no names attached, i.e. without mention of the specific source of funding—but could still be recognized for their contribution to support nutrition education. What about a tax break or some way to recognize their contribution without name recognition.

Mr. STENHOLM. Dr. McCarron.

Dr. MCCARRON. If I could reflect on a comment that was made, foundations are a good source of pulling money, but it doesn't change the scientific process that requires that when you report data, that your colleagues verify it. That is the safest and the most time tested way of assuring that data is gathered in unbiased fashion.

The other issue I would like to raise is that there are a lot of parallels between what we are talking about today and the orphan drug issue that FDA has had to address in other committees of the Congress, Senate and House, in the past. By that I mean the health issues we are talking about have the very generic quality to them.

It is hard to get your arms around who benefits and if we are going to be successful in recruiting other sources of funding, which I do believe is critical and I do believe the public sector should join in partnership with the private sector, not just the agricultural commodity groups, but the food corporations of this country, there has to be some incentive for them to join in this effort. I am not sure it is there right now.

We need to think about ways in which we can stimulate that interest.

Mr. STENHOLM. How did the South Carolina agromedicine project get started?

Dr. SCHUMAN. It started as a response I think to the peach farmers—isn't that right, Dr. Brittain—who were being harassed by the health department in terms of using a nematicide.

Mr. BRITTAIN. That happened to be the crisis that was underway at that time. I think Dr. Schuman's group was actually already existing at MUSC and they had been grant funded, and we had some leaders in the Clemson organization and I think at MUSC who recognized that agriculture needed to have a more human face. We were getting pretty well bombarded by consumer groups and the Green movement, and suggestions were being made then and now that somehow farmers were not very good environmental stewards of the food supply and were in some sort of negative collaboration with the agribusiness industry.

I think the reason our State offered to fund it during that period of time was in response to the public perception that we were more interested in profit than we were in the human side of agriculture, the food side.

Dr. SCHUMAN. It was started with a line item of less than $200,000 between the two institutions. It was a nonrenewable thing so we had to defend ourselves every year as a line item. Over the course of 8 or 9 years we have developed constituencies in all 46 counties, Farm Bureau, Women In Agriculture, nutritionists, and primary care physicians who see us as a continuing education outreach from both campuses.

I feel the more I hear these issues that are so complex and cannot be solved that, including environmental medicine and occupational medicine and wellness programs and—they are getting more out of the health dollar, that the primary care physician must be kept in the loop, that this person is overworked and is busy but can exercise quite a bit of leadership in networking with resources.

So that in the current scare, for example, NAS promoted by Dr. Landrigan and his pediatric lobby took over 3 years and $1,300,000 to tell us that children are not little adults, was not a whole lot of yield from the national study. I couldn't resist putting that in.

You mentioned what are some of the polarizations that have been going on in the American Academy of Pediatrics has not served their patients well in that effort.

They have linked pesticide residues, parts per billion with lead, and the chemistry is just not the same.

So I got off the subject there but in these areas of concern, in our State and the recent concern, and you mentioned ambiguous messages. On the one hand, NAS says children are not little adults and we have to do better than measuring the parts per billion, on the other hand, keep eating your fruits and veggies. Not a very clear message to the public.

In our State we waited by the phone all week and we didn't get a single phone call from a concerned school, or day care center—it was like day and night with the Alar controversy. We got one call from one TV station and they didn't even want to use it on the air. But we feel the primary care physician has enormous potential, and in response to your eloquent plea for better education, I know what it is to fight curriculum committees. I have not done that.

We have taken a different tack which is—medicine is a lifelong learning process and I believe I can reach more physicians in primary care 5 years after they are out of medical school than when they are in medical school. I will give a food quality and safety lecture to the entire freshman class, one hit for 1 hour. I have done that 3 years in a row. That is kind of fun. But then the students become little surgeons and little OB's and little gastroenterologists and little cardiologists doing their thing. They are so delighted to be specialist doctors at that stage.

But after they get out, they become community-oriented and they are highly reachable, if you package it right, and if you reach them in the context of their practice. I think they are a vastly neglected resource for preventive medicine. Practitioners don't relate especially to the health departments' bulletins or relate to "Healthy People: 2000," and all these high-powered conferences which are very important at the national level.

They do relate to what is going on in Allendale County, or what is going on in Summerville. That is what they want from agromedicine—if you can respond to their patient-need, then you have their full attention. If you are available at the end of the phone line, if Jere Brittain is available at the end of his phone line for the truth about atrazine in ground water, Jere can inform me. Together we can talk about parts per billion and the health of the farm family using that well for the doctor.

So it is this teamwork that we found that has been very rewarding and very cost-effective. I am not full-time agromedicine, I am half-time family medicine, and half-time agromedicine.

So I don't plan to devote my entire time to agromedicine. That would take me out of the clinical setting. That would be wrong. But we work with all the agencies. We do work with the State health department, with the poison control center, and it has been a good program. Trying to get it started in other States, the major obstacle is territoriality between the campuses. You have problems with Republicans and Democrats.

You try to get a program started and you have problems, for example, in Alabama, you get the medical school in Alabama to meet with Auburn, but you have the football rivalry and all of a sudden all they want to talk about is their two football teams instead of agromedicine.

We often say a State has too many medical schools, or too many football and basketball teams. When we talk about how we got started in South Carolina, it's because MUSC does not have a football team and Clemson does, so we are no threat to Clemson.

Mr. STENHOLM. Your red light went on.

Dr. SCHUMAN. Thank you very much.

Mr. STENHOLM. Thank you.

Mr. Allard.

Mr. ALLARD. Thank you, Mr. Chairman.

I agree, so much of this is a matter of perspective. In our State, UNC means the University of North Colorado, but you mean University of North Carolina.

Listening to your testimony, the thought crossed my mind, how much interest do physicians have in nutrition? I would suspect that it is the students that Dr. Schuman was talking about, how they all want to be surgeons and specialists in one particular area or another, and probably they are not focusing on nutrition at that time.

Would any of you like to address that?

Ms. YOUNG. I will.

Mr. ALLARD. Dr. Young.

Ms. YOUNG. There is a great deal of interest among physicians in general. At our school in San Antonio, in my written testimony, I have a brief description of what we do there in terms of nutrition and you may want to note, if you read it, we have quite a number of physicians that are in all the different areas of medicine who participate in what we try to do in terms of nutrition education.

So in the program we have—we have a course, the first, second, third, and fourth year, and also in our residency training program, that tries to build on each year in medical school education—we collaborate with many of the physicians in our school. We have physicians from surgery, ob/gyn, pediatrics, internal medicine that work with us. I find them all very collaborative and very supportive.

Not only do they contribute some nutrition in teaching the medical students, but also in turn the very fact that they do that, makes them more aware of the fact that nutrition is very much related to what they do in practice of whether it is ob/gyn or pediatrics or whatever.

So I find, at least in the setting that I work in, a very strong support from physicians in almost every one of the disciplines.

Mr. ALLARD. You were sharing statistics with this subcommittee, and correct me if I am wrong, you said 25 percent of medical schools have nutrition as a requirement?

Ms. YOUNG. Yes, that is correct.

Mr. ALLARD. And 60 percent have nutrition as an elective.

So less than 60 percent of the physicians who graduate probably have not had any nutritional training.

Ms. YOUNG. That is correct. Especially because most students do not select to take the electives.

Mr. ALLARD. Including premed?

Ms. YOUNG. That's right. I am only sharing my experience in my school, but basically what you say is correct, most students will graduate from medical school without having had any exposure even to the principles of nutrition assessment and the support they should be able to provide their patients, no matter what area of practice they go into.

Mr. ALLARD. I suppose the family doctor is the front-line person out there and probably the one that would be best to talk about nutrition. Do most family doctors, family practice programs, have a nutrition requirement?

Ms. YOUNG. I don't think most do, but I know they are most often in the field of primary care. This group, on a national level, has sponsored several conferences specifically to help train family practitioners in the area of nutrition. So this particular area of physicians has been much more in tune with it and has been taking positive steps in that direction.

Mr. ALLARD. Dr. McCarron, would you like to make a comment on that question?

Dr. MCCARRON. Yes, I think that first of all on our situation in Oregon, we have a solution for the conflict and that is you only build one medical school and you don't have as much problems. We just have to deal with Seattle.

The interest of physicians I think varies greatly. As part of our clinical nutrition research unit with the sponsorship of the National Kidney Foundation, we are entering the sixth year of a nonpharmocological treatment of high blood pressure, basically how you treat hypertension by diets.

We have been to 23 cities and we have touched 5,000 health care professionals, less than 5 percent of the attendees are physicians even though that is what it is labeled. That is who the mailings go out to.

So while I am optimistic once you are in practice, it comes down to the time, can they get away and attend these meetings, et cetera.

I think one of the things this committee can do besides giving directives to the Department is to also take the message back to your constituency from the agricultural community. The agricultural sector of this committee has to understand that they are as big a player, if not a bigger player, in the evolution of health care in this country as the pharmaceutical industry is.

Mr. ALLARD. Do the physicians think of nutritionists as part of their team or have they identified someone in their community who would help them if they had nutritional questions, or do they think about the extension service and the nutritional program there?

I want you to show for the record that everybody nodded no.

Ms. YOUNG. I would comment that the answer is, no, they don't. Most physicians, as we have said, 60 to 70 percent of all physicians in the United States have not had nutrition experience in their medical training. Therefore, they are not in tune with thinking about that or asking/seeking nutritionist referrals.

Mr. ALLARD. Maybe this ought to be more of a focus to the Extension Service to work on primary care physicians.

Dr. SCHUMAN. I would like to say, as I am listening to my colleagues, I think that—on the optimistic side—if you are willing to allow nutrition to become part of wellness, there is a growing movement for sports medicine and wellness, and health in the workplace. I think that will become part of the curriculum, if it is part of that package.

In other words, there is a little tension between nutrition as part of diabetes, kidney disease, and so forth and nutrition as part of a positive proactive health promotion and wellness. In our little group we have just added a family physician, certified in family medicine and in sports medicine.

Peter Carek is going to be a first-rate leader in this area because he sees nutrition as part or wellness. I think that is important.

Second, I wanted to mention, before I forget, the food industry, the commodities, dairy, and so forth, the industry as a group has to realize the entire American food supply is constantly under attack by people first hitting apples with Alar, and then hitting this group and that group, and cranberries and fat in the beef and so forth.

The industry as a group has to realize that this is a generalized attack on confidence, trust, and appreciation of the U.S. food supply which again is the best in the world.

Mr. ALLARD. Well said.

Thank you, Mr. Chairman.

Dr. SCHUMAN. When I go before the farmers, the Pork Board wants me to talk about pork and the Poultry Board wants me to talk about poultry, but generally this attack is against all of the producers and the quality of the supply.

Ms. YOUNG. I would like to urge this committee, urge you very strongly to consider what you might be able to do to be effective in coming up or trying to support some overall Federal agency that would specifically look at medical education.

As you read the report that has been done by Health and Human Services this past year, there is no Federal agency that really is responsible more or less for overseeing that area and I think if there was such a group, that a lot of things could be collaborated much better and more effectively and be much more profitable I believe.

Mr. STENHOLM. I am curious, how much emphasis goes into nutrition in training veterinarians, for example?

Mr. ALLARD. There is a lot of nutrition in veterinary schools.

Ms. YOUNG. More than in human medical schools.

Mr. ALLARD. We are hit over and over again in the 4 years, but it is so much an important part of the animals we treat. I was thinking of comments that Dr. McCarron made on potassium, calcium, and magnesium, I think you just upset the physiology of the kidneys.

I may have to go back to see about sodium, but we do spend an awful lot of time on that, yes.

Dr. MCCARRON. I must say that I am a nephrologist by training so hopefully I have not gotten too twisted.

There is another general thought, as this country in the health care priorities and research priorities explores insertion of genetic material into animals as a way to eliminate common problems, how far off the mark have we gotten that we still just don't understand so much that is basic from the food supply and its contribution to health?

There is something awry here, and I think that leadership is going to have to come out of the agricultural community. In this town, it has to come out of those Members of Congress who are interested in the long-term support of the agricultural community.

Mr. STENHOLM. I have been a reluctant convert to the basic statement that there is nothing new to be discovered in politics, political science, or in ideas. I thought as we got into today's hearing that we had really thought about something new, trying to involve physicians and the public health sector with agriculture, and then I find out South Carolina beat us to it by 9 years.

It is tough for a Texan to admit privately or publicly that that happened.

Dr. Young, are you familiar with the efforts of Andy Vistell, the county agent in San Antonio, trying to put together a resource group for purposes of answering questions on food safety when they arise? Are you familiar with his efforts?

Ms. YOUNG. What is the name?

Mr. STENHOLM. Andy Vistell, the county agent in Bexar County.

Ms. YOUNG. I am not familiar with that particular person, but I am familiar with what they do and so forth.

Mr. STENHOLM. He has an interesting concept going on, and I would suggest to him to get in touch with you, because there are some physicians that have gotten involved with him and his program. Basically what it is, in my simple terms, is an effort on a local basis to build resource groups to answer questions whenever there is an assertion made about the food safety question.

Ms. YOUNG. That would be good.

Mr. STENHOLM. There is a place that can be hooked onto that will have credibility. What he is seeking is nonagricultural-types, which goes back to agromedicine, as I come to understand what you are doing in South Carolina.

I totally agree to that as far as building credibility. I really can't think of a better entity than a physician to deal with credibility regarding food safety. There are probably others just as good, but I can't think of too many better. That is the concept. That is why we appreciate, Dr. Brittain, and Dr. Schuman, you sharing what South Carolina is doing.

Dr. SCHUMAN. You said you were scooped, but in 1825—this is an editorial from the new Journal of Agromedicine, but first, the publisher will be delighted that I brought the first issue of the journal, but in 1825 Joseph Johnson, M.D., wrote to the ag society of

South Carolina his views on improving the health of the low country plantations. That is 75 years before the discovery in the 1900's of mosquitos and yellow fever. Dr. Johnson observed an increase in the fevers and jaundice of rice fieldworkers who were exposed to inadequately maintained drainage ditches.

He also urged farmers to take summer retreats to higher grounds to avoid bad air. Hence the name of the village near Charleston called Summerville. This advice he offered in humility. "It would be presumptuous for a physician to offer anything to your society on agricultural science," he said.

This was in a quarterly published at $4 per year subscription called the Carolina Journal of Medicine, Science and Agriculture.

What have we learned about agromedicine? Nothing new. These people in 1825 really understood it. We eat three times a day, we go to the doctor once a year.

Mr. STENHOLM. Lest the other panelists feel now the compulsion to confess along the same lines, let the record show that there have been no original ideas expressed by anybody at this hearing today. All right, that is fascinating. I think that is a good place to end this hearing because it shows where we have some real fertile ground that needs to be cultivated. Yesterday's hearing on pesticides and the National Academy of Sciences study was an extremely good one, also for purposes of delineating the record as to what we are talking about with the safety of our food supply, nutrition. It has to be where it begins, and we have a lot of thoughts now to go into this.

We appreciate each of you taking your valuable time to come and share with us and say to you as we have to the others, we look forward to working with you as we try to come up with some—I hesitate to say better answers, try to utilize the educational processes that this country has experienced over 217 years in a better way to meet the 1990's problems, I guess, is the best way that we talk about it. Science and education, they go together. Thank you for being here.

[Whereupon, at 1:45 p.m., the subcommittee was adjourned, to reconvene, subject to the call of the Chair.]

[Material submitted for inclusion in the record follows:]

TESTIMONY OF ELLEN HAAS
ASSISTANT SECRETARY, FOOD AND CONSUMER SERVICES
U.S. DEPARTMENT OF AGRICULTURE
BEFORE THE
HOUSE SUBCOMMITTEE ON DEPARTMENT OPERATIONS
AND NUTRITION
HOUSE COMMITTEE ON AGRICULTURE
JULY 15, 1993

Good morning Mr. Chairman. I am pleased to be here today, along with Myron Johnsrud who is representing the Acting Assistant Secretary for Science and Education, to talk about nutrition research and nutrition education activities at the United States Department of Agriculture (USDA). Nutrition must become a primary mission of USDA. This hearing recognizes that imperative.

As you know, I've appeared before this important committee many times, but this is my first as USDA's Assistant Secretary for Food and Consumer Services. My appearance here underscores Secretary Espy's commitment to nutrition and today's hearing acknowledges that there are three parts of USDA -- agriculture, rural development and nutrition.

Secretary Espy has pledged to make nutrition education a priority and to work to integrate nutrition into the agriculture, health and welfare policies of the Clinton Administration. And I am committed to doing just that. Secretary Espy and I want to commend you, Mr. Chairman, and Members of the committee for focusing on our national nutrition responsibilities.

Nutrition education is essential

With the clear evidence of the relationship between nutrition and health, enabling Americans to adopt eating habits that follow accepted dietary guidelines is essential.

It is not enough for us to help produce food, or even distribute it better. We need to go beyond and establish nutrition education programs that promote healthful eating habits and empower consumers with enough information to make healthful choices for themselves and their families.

There is no question that diet is related to chronic disease. The 1988 Surgeon General's Report on Nutrition and Health found that for the two out of three Americans who neither smoke nor drink, eating patterns may shape their long-term health prospects more than any other personal choice. With the cost of health care spiraling, these are choices no American can ignore.

The 1989 report *Diet and Health* by the Food and Nutrition Board of the National Research Council found that diet is a factor in several major chronic diseases including cardiovascular disease, hypertension and certain cancers. Healthy People 2000, the Department of Health and Human Services national health objectives, relied on this research in identifying the 21 National Health Objectives for Nutrition.

Healthy People 2000 cites four "cornerstones" that are fundamental for the achievement of these objectives. USDA has responsibilities for these cornerstones, two of which are addressed at this hearing:

1. Marked improvement in accessibility of nutrition information and education for the general public, and

2. The maintenance and improvement of a strong national program of basic and applied nutrition research.

Research and education

Our nutrition education programs are firmly grounded in research conducted not only at USDA but also by Cooperative Extension Partners at State and Land Grant Universities across the country. Finding out why diets are not as good as they should be and what we can do to help people improve them is the purpose of our nutrition education research. Over the past year, the Human Nutrition Information Service's (HNIS) research on the factors influencing diet has focused on the diets of single parents, the characteristics of food label users, the characteristics of those who are concerned about food safety, trends in the use of fruits and vegetables, and the diets of children.

A major study, The School Nutrition Dietary Assessment Study, will be out later this year. This study examined the nutrient content of the school lunch program through the menus planned and offered to students, the foods chosen by participants, the amount of foods consumed and the effect on the nutrient intake of participants.

FNS is currently developing validated food frequency questionnaires to assess the diets of WIC clients and to provide a basis for nutrition education.

High quality scientific research, relevant to the areas of policy development, is absolutely essential. We need to continue to assure the professional community and the public that USDA is a credible source of dietary guidance. What we say about healthful eating must be scientifically accurate and unbiased. If it is perceived to be influenced by political concerns or the concerns of any special interest groups, it will not, and probably should not, be accepted.

While we have done much research and produced many educational materials, the effort has been fragmented and lacking an overall strategy. At least eight USDA agencies are involved in nutrition education and research activities. And within each agency, the efforts are further scattered. We need to improve our coordination so that we are offering a unified, effective message to the American people.

Coordination

All of the nutrition research and nutrition education efforts we undertake depend on working partnerships within USDA, with other Federal, State and local governments, and with the private sector. I am a firm believer in the importance of making linkages and building coalitions to achieve shared policy goals. All who are part of the food system -- consumers, farmers, industry, and government -- have a stake in this agenda.

There has been cooperation and collaboration among various public and private groups. But we must do much more. We not only need to work together, we need to coordinate more effectively the work we do. I am extremely interested in developing a nutrition education initiative to pull together, for information-sharing and networking, all the leading organizations and individuals in the area of nutrition education.

Some efforts have been made to address this problem. Within USDA, many agencies have responsibility for some aspect of nutrition -- education, research, monitoring or the direct provision of food assistance. Coordinating mechanisms have been developed at the staff level including the Dietary Guidance Working Group, and the Human Nutrition Coordinating Committee with membership and representation from every agency with nutrition activities.

HNIS works closely with the Family Economics Research Group that studies the economic factors which may affect dietary status. They also work closely with HHS agencies such as the Food and Drug Administration on food labeling education, the Office of Disease Prevention and Health Promotion on general dietary guidance issues, and with the various National Institutes of Health agencies such as the National Institute on Aging in developing education materials. HNIS collaborates with Cooperative Extension Partners at Land Grant Universities to review and distribute nutrition education materials for consumers.

FNS and the Extension Service have joined together to provide intensive nutrition education to WIC program recipients.

FNS also coordinates with HHS agencies such as the Maternal and Child Health Bureau, Medicaid, Office for Substance Abuse Prevention, Centers for Disease Control, Head Start, Healthy Start, and the Indian Health Service. FNS is also involved in the Department of Education's Even Start and the Office of Migrant Education.

Examples of multiple Federal agency and private sector coordination include WIC and the Surgeon General's Healthy Children Ready to Learn Initiative; Operation Weed and Seed; and the National Breastfeeding Promotion Efforts--USDA's Breastfeeding Consortium is made up of over 25 organizations, including the Academy of Pediatrics, the American Nurses Association, the Healthy Mothers, Healthy Babies Coalition, and the Agricultural Research Service Children's Nutrition Research Center at Baylor College of Medicine.

Communications Strategy

At the same time we work on coordinating our message, we must work on communicating it more effectively.

We live in a technologically sophisticated world yet we continue to disseminate information mostly by brochure and pamphlet. The Department has extensive electronic resources which we need to harness for more persuasive and far-reaching communications.

For example, we are using print brochures to compete with the billions spent to produce the light and sound shows that are today's TV food ads. Americans watch television so that's where we have to be. We need to fight fire with fire and stretch our reach by using new communications technology. If the teenagers who are watching MTV are the ones we need to reach -- and our research tells us they are -- then our messages should be on MTV.

We need to use the results of all our research more effectively. We have conducted national food consumption surveys and do food composition research that tells us that food consumption patterns differ by income level and, often, ethnic group. HNIS has determined the informational needs of pregnant teens, elderly consumers, and adults with low literacy skills. Healthy People 2000 cites the special needs of high-risk populations, such as low-income and minority women. We must develop materials that empower these high-risk groups as well as the average consumer to make healthful food choices.

There already exists a scientific consensus on what makes a healthful diet. USDA's Human Nutrition Information Service in cooperation with the Department of Health and Human Services has provided Dietary Guidelines for Americans since 1980. The two departments will soon review and revise the guidelines to ensure that they represent the best advice we can give the public.

The Food Guide Pyramid, which visually translates the dietary guidelines, is the best known product of HNIS' nutrition education efforts. This pyramid has become a powerful tool for conveying the nutrition message--not only in USDA's nutrition education efforts, but in the food industry and other private sector initiatives. For example, the Food Pyramid is on the back of Cheerio's boxes on breakfast tables across America and other food companies are finding ways to use it. But there is still confusion about how best to build the pyramid into education programs and we must do more to help consumers.

The new food labeling law promises to be another useful tool in nutrition education efforts. The label enables us to provide consumers with knowledge about exactly what they're eating. But the new food label is only beneficial if consumers understand what they're reading. We can't just glue the new label to packages and walk away. We have to explain what it means and how to use it. With proper education, the new label will empower consumers to make healthful choices.

Food-assistance programs need a nutrition education component

We not only need to broaden our education effort, we need to broaden our base. We must make sure we are providing all segments of the population -- particularly the most vulnerable -- with nutrition information.

USDA will spend more than $300 million this year on nutrition research, monitoring and education activities. Nearly half that money goes to support nutrition education in the WIC program while very little of it is used for nutrition education in the Food Stamp program, relative to the size of the program. Nutrition education must be an integral part of *all* food assistance programs.

We estimate that one of every six Americans is served through the 14 food assistance programs managed by the Food and Nutrition Service of USDA. Without education, program participants may receive food but not the information they need for a healthful diet.

Our role in providing nutrition education in the food assistance programs is to ensure that our participants make informed decisions about the food they select and eat. Several of our programs have specific nutrition education initiatives underway, and they are as follows:

Food Stamp Program

The Food Stamp Program is the largest, single food assistance program, serving more than 27 million people. But, it has the smallest nutrition education component. Less than 1/10 of 1 percent of the Food Stamp budget goes for nutrition education. We need to do more and enlist the aid of the Committee and other interested groups to be creative in reaching this diverse population.

Currently, through the Food Stamp Program (FSP), administrative matching funds are provided for State initiated nutrition education plans that are conducted exclusively for the benefit of Food Stamp applicants and participants, and do not duplicate USDA's Expanded Food and Nutrition Education Program's efforts in the States. However, only nine states make use of this 50/50 plan. Clearly, we must do more to provide nutrition education for the 27 million Americans who rely on food stamps to supplement their food purchasing resources.

For the first time, FNS will award $500,000 in Fiscal Year 1993 for Food Stamp Nutrition Education Demonstration Grants. These grants, which do not require matching funds, will support the development, implementation and evaluation of innovative community nutrition interventions directed to Food Stamp participants. Educational objectives will focus on improved knowledge, abilities and skills for meal planning, budgeting and food preparation. These grants will be awarded in September 1993.

Secretary Espy has set as a priority making nutrition education an integral part of the Food Stamp Program. In response, the FNS staff is working on a long-range plan for nutrtion education.

This plan could include providing nutrition education videos in food stamp waiting rooms, updating the food stamp poster and brochure to reflect the food guide pyramid (these materials are 12 years old), and making these publications relevant to the lives of the recipients who are getting the food benefits.

The Special Supplemental Program for Women, Infants, and Children (WIC)

Unlike in the Food Stamp Program, nutrition education is one of the primary missions of the WIC program. As I stated earlier, almost half of the program dollars we spend on nutrition education is for the WIC Program.

This Committee is well aware of the effectiveness of the WIC program. We know that nutrition education, as a major WIC activity, contributes to those positive benefits and the overall effectiveness of the program even though we can't attach a precise dollar figure to it. Nutrition education is fundamental to the mission of WIC and WIC staff take their responsibility seriously.

WIC provides nutrition education along with nutritious food packages and referrals to health and social services. Many of the neediest WIC clients are young mothers with low reading skills. The nutrition education we provide--the foods and dietary habits we recommend--were developed using research data on what people are eating and what they should be eating for proper nutrition. It is our task to translate this information into practical dietary advice for low-income women during pregnancy and lactation, and for parents on how to feed their families.

By regulation, at least two nutrition education contacts must be offered during the participant's certification period. The first contact is usually provided as part of the certification process. Additional nutrition education contacts are offered to participants during food voucher pickup, health clinic visits or at other scheduled times.

WIC nutrition education is designed to focus on the relationship between proper nutrition and good health and to assist participants at nutritional risk to make positive changes in their diet. In Fiscal Year 1992 approximately $140 million was spent on nutrition education in the WIC program. Approximately $16 million of these funds are used to promote and support breastfeeding. Examples of other current WIC nutrition education activities include:

-- The WIC Nutrition Education Assessment Project. This study will investigate the effect of WIC nutrition education on participants' nutrition-related knowledge, attitudes, behavior and satisfaction with services.

-- The second National WIC Nutrition Services Meeting. The theme of this year's conference will be the provision of quality nutrition services to WIC participants in a manner which accommodates their cultural, ethnic, and educational differences.

-- The Department's FY 1993 appropriation included $3.53 million for the Extension Service to collaborate with WIC on a special nutrition education initiative. This will provide additional nutrition education to the neediest of WIC participants.

-- FNS is developing a handbook, Nutrition and Feeding During Infancy: A Handbook for Use in the WIC and CSF Programs for use as a reference guide for nutritionists and other health professionals who provide nutrition education to caretakers of infants in the WIC and Commodity Supplemental Food Programs.

-- FNS awarded Breastfeeding Promotion Grants in Fiscal Year 1991 and 1992 to explore the effectiveness of using incentives donated from the private sector for improving breastfeeding rates. The promotion of breastfeeding is an important part of nutrition education for new mothers and babies.

-- USDA hosts ongoing semi-annual meetings of the Breastfeeding Promotion Consortium to exchange information on how government and private health interests, including major health professional organizations, can work together to promote breastfeeding and to explore and implement joint efforts.

Nutrition Education and Training Program (NET)

NET aims to help build good food habits by teaching the fundamentals of nutrition to children, parents, educators, and food service personnel. It is the only national school-based nutrition education program. It should be noted that the NET program is authorized at $25 million but that appropriated funds are less than half of that. Together, the Congress and the Administration must place a priority over the next several years on rebuilding the capacity for this program that was cut back so severely in the early 1980s.

The nutrition education activities are coordinated with the National School Lunch and School Breakfast Programs, the Child and Adult Care Food Program and the Summer Food Service Program. NET reaches children by coordinating learning experiences in the schools, child care centers, and the community.

Curriculum and audiovisual program materials are developed and purchased with NET funds to provide nutrition information that appeals to, and addresses the needs of, children.

Recently, through a collaborative effort, a Strategic Plan for Nutrition Education in the Child Nutrition Programs has been developed. The Plan provides a structure that identifies ten national goals for nutrition education and training, nutritious meal service, and nutrition education leadership. The Plan was developed through a strategic planning process that included nutrition partners from industry, professional organizations, and Federal and State agencies.

In early March, a National NET Conference, entitled Promoting Healthy Eating Habits For Our Children was conducted.

The Strategic Plan for Nutrition Education was the centerpiece of the conference. Other NET activities promote interagency coordination of child nutrition activities. Examples include:

-- contracting with the National Food Service Management Institute (NFSMI) to develop guidelines for conducting a nutrition education needs assessment in schools.

-- Providing technical assistance to the revision of HHS' Handbook of Head Start Nutritionists.

-- Providing major technical assistance to the Head Start Bureau (HSB), Administration For Children and Families, for Padres Hispanos EnAccion (PHA), a nutrition education project funded by HSB/Kraft General Foods for parents of Hispanic Head Start children.

-- Providing technical assistance in the development of national guidelines for nutrition education being developed by the Centers for Disease Control and Prevention, Division of Adolescent and School Health. This is another good example of the kinds of partnerships we should continue to develop.

Nutrition education is an important component of school health and education and USDA wants to do more in this area. The

Centers for Disease Control (CDC) has launched a significant initiative to expand health education in the nation's schools and we have been actively coordinating with CDC on this initiative.

Food Distribution Program on Indian Reservations (FDPIR).

In order to respond to the need for greater and more effective nutrition services for participants in the FDPIR program, USDA recently formed an Interagency Working Group for Native American Nutrition Education. Nine federal agencies that have responsibilities for providing nutrition education, or health care services to Native Americans, are members of the Working Group, as are two Native American organizations engaged in food assistance. The goal of the Working Group is to provide increased and improved nutrition education services to Native American groups through collaboration and coordination to avoid overlap and more efficiently use resources. The Working Group is committed to supporting nutrition education which is specifically geared to the needs and cultures of Native Americans.

The Working Group is not our only initiative in support of nutrition education for participants in the FDPIR program. Nutrition education fact sheets were developed that address a variety of diet-related health conditions common among Native Americans, such as diabetes, hypertension, and obesity, and more general issues, such as nutrition during pregnancy and nutrition requirements for the elderly.

In 1993, we requested and received, $135,000 in funds appropriated for FDPIR nutrition education. These funds were made available to purchase nutrition education publications and materials for Indian Tribal Organizations and State agencies.

Mr. Chairman, while all these food program initiatives are excellent examples of nutrition education activities within our programs, it's not enough, and we need to do more.

President Clinton has charged his Cabinet to reexamine the way the federal government is doing business and to find new and better ways to provide services for the American taxpayer. Secretary Espy is taking this charge seriously and has directed his appointees to help the President reinvent government. The Department is undertaking a sweeping review, and the manner in which we are organized to meet our national responsibilities for nutrition research, monitoring and education is, of course, part of that review -- the first such review since the Food and Nutrition Study of the 1979 President's Reorganization Project.

I believe it is fundamentally important that the Department refocus on its nutritional mission. Our programs touch the lives of every American every day. The Department's structure must, then, reflect this significant national responsibility.

Mr. Chairman and Members of the Committee, for many years I have worked on behalf of consumers to promote access to a safe, nutritious and affordable food supply. I value the opportunity that Secretary Espy and President Clinton have given me to help improve the nutritional and health status of American consumers.

This concludes my statement. I would be happy to answer any questions that you or the Committee members might have.

STATEMENT OF
DR. MYRON D. JOHNSRUD
ACTING ASSISTANT SECRETARY
SCIENCE AND EDUCATION
U. S. DEPARTMENT OF AGRICULTURE
BEFORE THE
SUBCOMMITTEE ON DEPARTMENT OPERATIONS AND NUTRITION
COMMITTEE ON AGRICULTURE
U. S. HOUSE OF REPRESENTATIVES

July 15, 1993

Mr. Chairman and Members of the Subcommittee, I'm pleased to be with you today to discuss the Science and Education nutrition research and education activities of the U.S. Department of Agriculture (USDA). Dr. Plowman sends his apologies for not being here; he had a long-standing commitment out of the city. My statement includes a discussion of some of the research and education activities of the Agricultural Research Service (ARS), the Cooperative State Research Service (CSRS), and the Extension Service (ES). Much more could be said about our nutrition research programs than time allows this morning, Mr. Chairman, and with the permission of the Subcommittee, I would like to file for the record more detailed testimony from ARS and CSRS.

Food and nutrition programs are part of a larger context and relate to issues of poverty, economics, health and the environment. Secretary Mike Espy has pledged to work to integrate nutrition into the agriculture, health and welfare policies of the Clinton Administration, and the USDA Science and Education agencies stand ready to support him in this endeavor.

Poor nutrition is expensive--it increases overall health costs to individuals and to society. It compromises a child's potential to grow into a strong, healthy adult. Along the way, it affects a child's ability to concentrate and to learn in school. The saying is "Everyone eats; unfortunately, everyone does not eat well." Some do not eat well because they do not have the economic resources to do so. Others do not eat well because they do not know what or how much is good for them to eat.

USDA's Science and Education agencies are developing and communicating the information that helps produce more nutritious foods, that helps us understand what constitutes an optimum diet, and that helps maintain our health.

The 1977 Farm Bill designated USDA as the lead agency for nutrition research and education, but our commitment began long before 1977; this year marks the centennial of USDA's involvement in nutrition research. USDA's mandate, from the very beginning, has been to ensure that the people of this country have a safe and adequate food supply. From the farm to the kitchen table, many decisions are made that affect the quality and wholesomeness of our nation's food supply. And those decisions are made based on the current knowledge and information drawn from nutrition research and education. This is why the USDA Science and Education agencies are directly involved in both nutrition research and nutrition education. Neither of these components--research nor education--can stand alone. One gathers necessary information for food producers, processors and consumers, while the other aids in disseminating that information in sound, practical ways that empower individuals and families to make wise, economical and healthy food choices.

A safe and wholesome food supply begins back at the seed -- breeding more nutritious varieties of crops and developing more nutritious ways to produce, harvest and process food. One of the first big projects at the ARS Plant, Soil and Nutrition Research Lab in Ithaca, New York, was to study fertilizer's effect on the carotene content of tomatoes. Carotene is a precursor to vitamin A, and both carotene and vitamin A have been linked to a reduced risk for some types of cancer. Today, an ARS scientist is busy breeding a new tomato variety that could easily have as much vitamin A as a sweet potato, one of the highest dietary sources of vitamin A.

We are also learning precisely what levels of what nutrients the body needs for health. For example, at the ARS Human Nutrition Research Center on Aging, many new findings suggest that even modest dietary changes may greatly improve the health status of the elderly. Researchers have found that vitamin E and other antioxidants may enhance the immune system, improving the body's ability to combat disease. Next time you watch a commercial for vitamins, notice just which vitamin group currently is being highlighted.

ARS scientists also are working with medical scientists at Georgetown University, Johns Hopkins University, the University of Maryland, and other institutions to further study vitamin and mineral bioavailability from foods as well as their interactions with different kinds of carbohydrate in the diet. The results of these studies are important in defining ways to improve food composition by genetics and processing to best meet peoples' needs.

The Human Nutrition Research Center in Grand Forks, North Dakota, is particularly focused on mineral needs and they have done pioneering work on the relationship of mineral needs to neurological and behavioral functions.

The Children's Nutrition Research Center (CNRC) in Houston, Texas, associated with the Baylor College of Medicine, conducts studies of nutrient needs for growth of normal and pre-term infants. The Center has equipment not available anywhere else to monitor growth of organs, muscle, bones and fat during pregnancy and of the infants and nursing mothers. Recently, the Center has begun a totally unprecedented study of nutrient needs and growth processes of teenage mothers.

CSRS, through the nutrition, food quality and health program of the National Research Initiative, is conducting a number of research projects with the objective of developing a better understanding of nutrients and consumer behavior related to nutrition. This research, carried out by the Nation's land-grant universities, emphasizes: (1) bioavailability of nutrients; (2) the interrelationship of nutrients; (3) nutrient requirements of healthy individuals across all age groups; (4) mechanisms underlying the relationship between diet and health maintenance, such as the effect of nutrients on the immune system; (5) the cellular and molecular mechanisms underlying nutrient requirements, including the modulation of gene expression by nutrients; and (6) food consumer behavior, including identifying and developing methods to overcome obstacles to adopting healthy food habits, to convey knowledge to target audiences, and to ascertain factors that affect food choices.

One very important research study currently underway looks at food behavior of adolescents and young adults. Researchers working with adolescents showed that while the teens were developing very strong opinions about food, nutrition, body image and health, their parents still had a great deal of control over their food intake. They then addressed what happens to teens when they enter the transitional years of young adulthood (18-24 years). There is virtually no information about the effect of nutrition and health concerns on food intake by this consumer group. Focus panel research has shown that 18-24 year-olds feel quite pressed for time and are very concerned about food costs. Fast food is their staple because it is fast, cheap, familiar, and safe. At the same time, they worry about nutrition--mainly dietary fat, cholesterol, salt and sugar, but also pesticides, additives, and other chemicals. The next step in the project will be to determine the factors most influencing consumption of specific food items, such as beef, cheese, and various fruits and vegetables. The enhanced understanding of what motivates the food choices of this age group will be used by Extension and health professionals to develop appropriate and effective programs.

Research, however, is only half the job; the other half is education. Information is only useful when it has been communicated to those who put the information to work. And the information must be communicated in practical and relevant terms for the appropriate audience, including consumers, farmers, food processors, plant and animal breeders, dieticians, health professionals, and all those who make decisions about food and nutrition.

For example, several years ago, ARS scientists developed a natural fat substitute called oatrim, made from oats, that is rich in soluble fiber and can replace all or part of the fats in many foods. Today just a few of the commercial products that contain oatrim are bologna, hot dogs, Peachtree brand cookies, low-cal cheese, and even many of the prepared dinners marketed under the trade name "Healthy Choice."

The Cooperative Extension System (CES), which links the USDA Extension Service, 74 Land-Grant Universities, and 3,150 county administrative units, provides nutrition, diet, and health education to a wide variety of audiences. The programs are designed to provide people of all ages with the knowledge to make informed decisions about what they eat. Objectives include helping people reduce the risk of chronic disease, give birth to healthy babies, practice responsible and healthy self-care, help children attain optimum long-term health, minimize nutritional inadequacies, and improve consumers' ability to make informed choices related to food safety, quality and composition.

One well known nutrition education program conducted by CES is the Expanded Food and Nutrition Education Program (EFNEP). This intensive education program is designed to help low-income families not only gain knowledge, but also gain the skills and adopt the behaviors that lead to a healthier diet. These low-income families often are at increased risk for developing nutrition and health-related problems. We have found that families who complete this six-month program are able to make significant improvements in their diets, while spending less money on food. As food dollars stretch farther and diets improve, health risks for these low-income families are reduced.

To improve the evaluation of EFNEP, ES has recently developed a new evaluation/reporting system. The new system has the capability to identify how many pregnant and nursing women are participating in EFNEP and what types of public assistance they are receiving. It also allows us to analyze people's diets before and after the program for their adherence to the USDA Food Guide Pyramid, for key nutrients like protein, calcium and fiber, and for the percent of the calories in the diet coming from protein, fat, and carbohydrates. Training on the new system is underway, and implementation will take place this fall.

ES and the Food and Nutrition Service (FNS) are collaborating to develop nutrition education programs that meet the special needs of WIC clientele--pregnant women, nursing mothers, and children from birth to five years of age. The goals of this initiative are to improve knowledge and behavior in areas such as food selection, purchasing, storage, safety, and preparation and to improve breastfeeding and dietary behaviors.

Another example of Extension's nutrition education programs is one which is targeted specifically toward addressing the problems and needs of Native Americans. Health and nutrition education programs on many reservations target Native American youth and focus on a broader concept of wellness by combining health and nutrition learning activities with physical exercise, including tribal dance. Extension agents work with youth, along with their elders, to promote healthy lifestyles and to reduce chronic diseases.

Perhaps one of the most important needs for nutrition education centers on maternal and infant health. Even within the broad category of women and infants, we see one group of people about whom we are particularly concerned -- pregnant teens. There are a host of reasons for this concern. Teens themselves are still growing and learning to make independent decisions about the food they eat. Their own needs are increased by the critical needs of their pregnancy. It is no wonder that teens are at a very high risk of giving birth to babies below the healthy birthweight of 5.5 pounds.

In general, low birthweight is the greatest determinant of infant death and disability, and poor nutrition is one of the major risk factors associated with low birthweight. Low birthweight occurs in approximately 7% of all births. Medicaid pays almost $19,000 per delivery of a low birthweight infant versus just $3,500 per delivery of a normal weight infant. Thus, low birthweight costs the nation somewhere in the range of $5 billion each year.

Mr. Chairman, I believe that you and Members of the Subcommittee may have heard of the "Have a Healthy Baby" program in Indiana. Of the over 2,000 teens and adults enrolled in this program, we have been able to collect data on about two-thirds, or over 1,200 babies. The data revealed that, over a three-year period, 97.9% of the babies were born normal weight and only 30 babies (2.4% compared to Indiana's average of 6.6%) were born low birthweight. As a result, this Extension Service program in Indiana prevented 52 low birthweight babies at a savings of $3.12 million in neonatal intensive care. (That is 52 low birthweight babies x $2,000 per day x the average stay of 30 days in a neonatal intensive care unit = $3.12 million.) To put this in perspective, the total dollars spent on the program in the last three years has been $156,000. In other words, for each dollar spent on the program, we save $20. That's a tremendous return on the investment in prenatal education. This program is currently being replicated in over a half dozen other States.

"Have a Healthy Baby," however, is only one of a number of educational efforts we have with pregnant and parenting teens. For the past eight years, the "Becoming a Mother" program of North Carolina has demonstrated its impact on both babies and mothers. Beginning as a home visitor program, teens are taught good eating patterns to ensure appropriate weight gain leading to a healthy birth. Following delivery, the young mothers become involved in a peer support group. Successful parenting is one focus; another is encouraging the teens to remain in school. We feel that parenting education is of importance equal to nutrition during pregnancy because our goal is to prevent overall child abuse and neglect.

I would like to make special reference to working with these young mothers to remain in school. High school graduation and post secondary education is one of the most important indicators of future self-sufficiency. One of the concerns with teens having babies is that they tend to not complete their education. By enrolling these young women in this and similar programs that include support to remain in school, we can turn this situation around so that they are not only able to be good, nurturing parents, but they have a future for themselves, their new families, and the communities in which they live.

Because maternal and infant health is of such vital interest to CES and because educational programs rely on a strong research base, we have entered into a collaboration with the ARS Children's Nutrition Research Center. The Extension Food and Nutrition Specialist with Purdue University, who developed the "Have a Healthy Baby" program, has been working at CNRC since April of this year. Her purpose is to link the scientific findings of CNRC with Extension faculty and staff throughout the country. A request has been sent out electronically to each State Extension Service asking them about their priority needs related to research in maternal and child health, the kinds of materials which are needed and at what levels (e.g., specific language and cultural content), and staff development and training needs. We plan to conduct teleconferences and satellite conferences to address these needs. However, we already have begun to share the knowledge of CNRC. For example, researchers recently discovered that smoking alters the nutrient content in the milk of lactating mothers. Information on the health consequences of smoking by lactating mothers has been communicated to local Extension educators who, in turn, are incorporating this information in news articles, broadcast items and teaching materials.

I will now to take a moment to discuss education for people who have low educational levels or who may not be proficient in English. Extension believes that there is more to enabling people to understand information than simplifying the written word. Of course, we recognize the importance of written materials and use these regularly, but we also use research information of different educational methodologies to guide our decisions about programming. For instance, we operationalize the old adage, "Give a man a fish and he'll eat for a day; teach him to fish and he'll eat forever." Our EFNEP participants, for example, are building skills as they apply principles of nutrition, food safety and money management in hands-on experience.

We also are sensitive to cultural differences among people. In California, for example, Extension has hired faculty who are both bilingual and bicultural to work with the Hispanic population. In this way, we can develop materials that conform with the cultural values and food habits of this important population.

In other instances, paraprofessionals are hired from the community to work with people in their neighborhood. The best example of this is the EFNEP program. For over 25 years, EFNEP program assistants have worked one-on-one and in small groups to teach their neighbors. This methodology lends credibility to the information being presented and increases the access of the people to the university.

Additionally, Extension uses community volunteers as teachers. The use of volunteers as teachers is a great community development effort. The people own and share the knowledge; it is not something that belongs to the "experts."

Hunger and undernutrition have been identified through our community-based needs assessments in several States around the country. Florida and Montana have worked on this issue through public policy education. In both States, Extension has formed coalitions of public and private organizations in order to strengthen the safety net for people in need.

Chronic disease prevention is another area where CES collaborates with a host of agencies, public and private-nonprofit. For example, Pennsylvania, New York and Maryland and the States of South Carolina, Georgia and North Carolina have formed two coalitions that have been funded by the National Institutes of Health (NIH) National Cancer Institute for the development of cancer control coalitions.

CES sees nutrition education as a holistic, comprehensive effort. We work to understand the needs of people and create programs that will be effective in the particular situation. This educational effort is coupled with many of the other nutrition and nutrition education services available from USDA and other health serving agencies and organizations. Additionally, USDA agencies which provide nutrition research and education work collaboratively for greater program effectiveness and impact. ARS, CSRS, ES, Food and Nutrition Service (FNS), and the Human and Nutrition Information Service (HNIS) all participate in interagency groups. These groups include the Dietary Guidance Working Group, the Human Nutrition Coordinating Committee, and the Food Safety Task Force, which help ensure that programs within USDA are coordinated and complementary and not duplicative.

The ES/HNIS Consulting Group provides feedback to ES and HNIS as nutrition education materials are developed and through critiques of material as these are used with various target audiences.

The Science and Education agencies also cooperate closely with other Federal Departments. The Interagency Committee on Human Nutrition Research is chaired jointly by USDA Assistant Secretary for Science and Education and the Assistant Secretary for Health at the Department of Health and Human Services. This Committee also includes the National Aeronautics and Space Administration, the Agency for International Development, the Department of Commerce, the Defense Department, Veterans Affairs and the Office of Science and Technology Policy.

There is also a great deal of collaboration with private industry. I mentioned oatrim earlier, which has already been licensed by ARS to three companies. Sales of products containing this healthy substitute already top $1 billion in just over a year since their introduction. Another example is Extension Service's involvement in a coalition of government agencies, trade associations and private companies to put together food labelling kits to help educate the public on how to read and understand food labels.

Mr. Chairman, this concludes my statement. I would be pleased to answer any questions which you and other Members of the Subcommittee may have.

Testimony by

Dr. Buford L. Nichols, Jr., M.D.
Director Emeritus
Children's Nutrition Research Center

Submitted to the
Subcommittee on Department Operations and Nutrition
Committee on Agriculture
U.S. House of Representatives
The Honorable Charles W. Stenholm, Chairman

July 15, 1993

Dr. Buford L. Nichols, Jr., M.D.

MAJOR POINTS

o The relationship between food and health is clear. Of the ten leading causes of death in the United States, five -- heart disease, cancer, strokes, diabetes, and atherosclerosis -- are attributable at least in part to diet. These five diseases accounted for 71% of all deaths in 1987.

o USDA's long-time mission is our food supply -- its production, processing, distribution, and consumption. This year we celebrate the centennial of the USDA's involvement in human nutrition research.

o The Children's Nutrition Research Center is providing the foundation of basic research for applied programs such as WIC and School Lunch as well as for general education efforts on nutrition.

o We at the CNRC link agricultural production and food processing together with medicine to make mothers and their babies healthier. The CNRC's mission is to find ways in which better food can produce healthier children today and healthier adults tomorrow. These studies will also help the nation's agricultural industry in producing and processing food products.

o The quality of our federal, state, and local assistance programs could be vastly improved by better coordinating the work of the various agencies involved.

o The quality of the aid becomes paramount once the quantity is there, and research is going to be the key factor in determining what constitutes a quality package of food assistance.

o The ARS human nutrition research centers are uniquely well-suited to address these research problems. We must be able to accurately translate research findings about nutrient needs into practical recommendations about food needs for health.

o The production and consumption of food and its relationship to health has historically been a key part of the mission of the Department of Agriculture. In this, the centennial year of USDA human nutrition research, I believe that it is time to rededicate ourselves to that effort.

Testimony by
Dr. Buford L. Nichols, Jr., M.D.
Director Emeritus
Children's Nutrition Research Center

Mr. Chairman and members of the Subcommittee, it is a privilege to be asked to appear before you today. I am Dr. Buford Nichols, and I have been Director Emeritus of the Children's Nutrition Research Center (CNRC) for about two weeks now. I served as Director of the CNRC from its founding in 1978 until this month, when I passed on my administrative duties so that I can have more time to spend on research and giving advice on nutrition issues.

I am proud to announce that my successor, Dr. Dennis Bier, is here today. Dr. Bier is a very distinguished nutrition researcher, a past president of the American Society for Clinical Research, a member of the Institute of Medicine's Food and Nutrition Board, and he chaired the expert panel for the National Institute of Child Health and Development's Five Year Plan on nutrition research. He comes to us from Washington University in St. Louis, where he was co-director of the Pediatric Endocrinology and Metabolism Division and director of Mass Spectrometry Resource and the Pediatric Clinical Research Center.

I compliment you, Mr. Chairman, for your most timely interest in the topic of nutrition research and education. Nutrition is the study of how food is related to health. I believe that the relationship between food and health will continue to grow in importance for at least two major reasons.

First, new scientific information is showing in more detail the linkages between diet and diseases. Of the 10 leading causes of death in the United States, five -- heart disease, cancer, strokes, diabetes, and atherosclerosis -- are attributable to diet. These five diseases accounted for 71% of all deaths in 1987.

Second, I believe that increasingly tight budgets will force a reassessment of priorities and will cause an increased emphasis on programs with a high rate of return. In the health arena prevention programs, especially including nutrition programs, have a very high rate of return on investment. The WIC program, for example, has been estimated by the General Accounting Office to save $3.50 for every dollar invested in providing WIC benefits to pregnant women. Prevention is almost always cheaper than treatment, and prevention of disease is the basic objective of the study of nutrition.

USDA Leads in Human Nutrition

The U.S. Department of Agriculture has long been a leader in the field of human nutrition. In fact, this year we celebrate the centennial of the USDA's involvement in human nutrition research. The fact that USDA has played the lead role in human nutrition research is quite appropriate. USDA is concerned with our food supply -- its production, processing, distribution, and consumption. The research work that we do at the Children's Nutrition Research Center has the potential to impact all of these. Research at the molecular level is opening up new vistas of understanding in nutrition as in many other fields, but the application of those research results for the benefit of people requires that we keep sight of the fact that we produce and eat food, not nutrients. We must be able to accurately translate research findings about nutrient needs into practical recommendations about food needs for healthy growth.

ARS - Children's Nutrition Research Center

The Children's Nutrition Research Center is providing the foundation of basic research for applied programs such as WIC and School Lunch as well as for general education efforts on nutrition. CNRC is the only USDA nutrition research center dedicated to work on the food needs of mothers and of children from pregnancy through adolescence. We link agricultural production and food processing with medicine to make mothers and their babies healthier.

The CNRC is an Agricultural Research Service lab which is operated by Baylor College of Medicine in cooperation with Texas Children's Hospital. The CNRC is located in the Texas Medical Center, which is the largest medical complex in the world. Baylor College of Medicine has the largest pediatrics department in the country, and Texas Children's Hospital is the largest children's hospital in North America. The scope and depth of expertise available within the Texas Medical Center is a singular resource that allows very productive collaborations to be brought to bear on complex research problems.

The CNRC is also unique in that, in addition to M.D.'s and Ph.D. human nutrition specialists, we also have on staff several swine nutrition scientists and a plant physiologist, who runs what is probably the only greenhouse located in a major medical center. We are also one of the world leaders in the technology of stable (non-radioactive) isotopes, which with our other unique facilities gives us the ability to do research that cannot be done anywhere else.

Nutrition Education

Promoting a healthy lifestyle for children and their families is a natural outgrowth of our roles as advocates of good nutrition. The primary function of the CNRC is research. However, we also want our research to be used. That requires making the step from information about nutrients to information about foods, and then helping in the effective delivery of that information to the target population.

Since its founding CNRC personnel have taught a course on nutrition to medical students at Baylor College of Medicine, and we also have people on staff who have long been active in breastfeeding education work. In addition to working with other research centers, both in and out of USDA, we have for many years actively worked with Extension, WIC, Child Nutrition, and other USDA programs to speed the application of the fruits of our work. The CNRC played a major role in developing the information on breastfeeding that the WIC program uses, and we have reviewed and edited most of the other materials on food and nutrition which are used in the WIC program.

The Center has formed a Nutrition Information Committee to increase awareness of scientific research conducted at the CNRC by serving as sources for news releases, responding to media calls and fielding questions from concerned parents across the nation. This committee also serves as a scientific review board for dietary information prepared for educators and the general public by government and non-government agencies.

One of the best examples of research in infant nutrition that has been appropriately and well communicated to consumers concerns the benefits of breastfeeding. The effective communication of research findings in this area is largely responsible for the fact that at least 60-75% of infants (versus a much smaller percentage two decades ago) are now breastfed for at least a short period of time. Much of the research in this area conducted at the Children's Nutrition Research Center has been reported in Center newsletters that reach not only parents in the local area but also Extension Specialists around the country who, in turn, transmit these research findings directly to consumers. In fact, the Extension Service has just placed a National Program Leader for Infant and Maternal Health at the CNRC in order to enhance the flow of information from CNRC researchers to the people who most need that information. A more recent research finding, which we are just transmitting through this network, is the fact that both the quantity and quality of milk production suffers significantly when nursing mothers smoke.

ARS Nutrition Research Results

The Agricultural Research Service, through the CNRC and the other human nutrition research centers, is having a major impact on human nutrition research. For example, in a recent book on nutrition during lactation by the National Academy of Sciences, about a third of the articles cited were by CNRC scientists. Let me speak a little bit about the work that the CNRC is doing in order to illustrate some of the fascinating and important things that are going on in the field of nutrition research.

Stable Isotope Research Links Agriculture, Nutrition, and Medicine

Radioactive isotopes have long been used in many types of studies, but they cannot be used in studies of healthy infants. We now have the ability to use natural substances labeled with non-radioactive, or stable, isotopes. Stable isotopes can safely be given to healthy infants. By taking breath, saliva, stool, and other samples we can measure very precisely what is going on inside the body. The CNRC is a world leader in this technology.

In our Plant Physiology Unit we produce foods, not just nutrients, which are uniformly labeled with stable isotopes. We can then feed these and follow them through the body, almost like having a little video camera attached to each food molecule. We can trace processes that no one had any idea were occurring, and we can study a wide variety of nutrients and processes simultaneously.

For example, we grew spirulina algae in a chamber with carbon dioxide containing labeled carbon. All the carbon in the resulting algae was thus labeled. Then we fed the algae to a hen, which produced eggs containing labeled carbon. In the process we discovered that all of one amino acid, proline, in the hen contained only labeled carbon atoms, meaning that all the proline came from the diet and none was made in the body. Thus, we showed that proline is an essential nutrient for hens, meaning that it is entirely absorbed from the diet. Despite the intensity with which poultry nutrition has been studied, that fact was unknown.

The fault was with the method, not the earlier poultry researchers. Our knowledge of essential and non-essential nutrients in all animals, including man, comes from deprivation studies. However, body chemistry changes under starvation conditions. It seems that hens can make proline if they have to, but do not under normal conditions.

This same technology now allows us to study normal human metabolic requirements without starving infants. For example, we have grown soybeans which are labeled with stable isotopes and are making them into infant formula for feeding studies.

How many other nutrients, in both humans and animals, have we been leaving out of the dietary requirements because we thought that they were normally produced in the body instead of being absorbed from the diet? The CNRC now has the technology to find out very precisely what the body does with the foods that we eat, and the answers we are getting are often different from established assumptions.

This is an excellent example of a nutrition research program that is linking the agriculture and health communities. By uniformly labelling foods rather than just specific nutrient components, CNRC research has the potential to identify, in a variety of foods, which nutrients influence human health, whether favorably or unfavorably, and identify the amounts of those nutrients that are actually digestible. This information, in turn, could result in marketable improvements in the nutritional characteristics of these foods, either through agricultural research or through the application of known technology to a previously-unknown problem. The potential importance of our work to production agriculture is indicated by the fact that we are now receiving research support from the American Soybean Association.

Calcium Requirements for Children

For example, we have found that current dietary recommendations for calcium intake for girls from infancy through puberty are inadequate for proper growth. In studies which have major implications for osteoporosis prevention, CNRC has discovered that calcium absorption and bone growth in girls is significant at age 5-8, reaches a maximum at ages 8-13, and drops off substantially at age 15-16, or two years after menarche (first menstrual period). Current recommendations for age 1-10 are 800 milligrams per day of calcium (about 3 servings/day of dairy products), increasing to 1200 mg/day for ages 11-24.

CNRC scientists believe that the recommended milk needs should be increased to reflect the fact that children need much more calcium at much younger ages than previously thought. We have also found that more than 85% of all girls over age 11 are not getting even the currently-recommended amounts of calcium.

Dairy products supply about 2/3 of all dietary calcium, so this research has obvious implications for USDA commodity programs as well as for USDA feeding programs such as school lunch, WIC, and Food Stamps. It also could have a major health impact in reducing osteoporosis later in life.

Protein Requirements for Nursing Mothers

Our new technology is also playing a pivotal role in changing the protein recommendations for nursing mothers. Our work has shown that nursing mothers need 33% more protein than the current recommended amount. These results have been sent by the Food and Nutrition Service to state nutritionists and may well result in an increase in the amount of protein provided to women in WIC programs.

We also have indications that recommendations for other nutrients for nursing mothers may be too low as well.

Premature Infants

The CNRC has made a major impact in improving the feeding of premature infants. It costs about $1,000 per day to care for premature babies -- $2,000 if they are in intensive care. We are getting many of these preemies out of the hospital up to 10 days sooner by using new formulas and feeding strategies. CNRC has shown that preemies do not absorb carbohydrate energy as well as full-term infants, and we are also doing studies on differences involving fats and other nutrients. We have also identified two growth factors in human milk, and one of these has been licensed for studies that may lead to its addition to baby formula. We have shown that feeding colostrum to newborn piglets gives a 700% increase in protein synthesis compared to those fed mature milk, and this has helped lead to more efforts to use mother's milk in the feeding of premature infants.

Teenage Mothers

Our work on the nutrient needs of nursing mothers leads to a very obvious and profound question: What about the nutrient needs of teenage mothers? We know that teenage mothers tend to have smaller babies. Low birthweight and poor growth are associated with increased blood pressure, chronic lung disease, coronary disease, and diabetes later in life.

Teenage mothers are actually "children who are having children." But we know very little about their nutritional needs, about whether and how competition for food may occur between the needs of a growing girl and the needs of a growing fetus. We as a society have far too many teenage mothers, and we have a particularly large concentration of them, divided among many racial groups, in Houston. Although unfortunate for society, it provides us with an excellent pool of research subjects.

The pregnant teenager is very good example of a high-risk population in which nutrition research is badly needed and in which an effective education effort based on sound research could pay a handsome dividend to society. It costs much less to have healthy babies than it does to hospitalize premature infants. If better nutrition can reduce the number of low birthweight babies, then the health care savings from this research investment could be enormous. CNRC is also working with the Extension Service to address this national priority.

Metabolic Research Unit

Whether working with pregnant teenagers, adult women, or children, much of our research relies on bringing in volunteers into our Metabolic Research Unit, or MRU. In the MRU we can closely monitor the amount and type of food they eat and the uses to which those foods are put. However, we do not have the funds to fully staff the MRU. We are the only USDA nutrition center that does not have a fully functional MRU, and we badly need that. The facilities are there, but we need additional staff to fully operate them. Currently our hours of operation are limited by the lack of staff to care for volunteers who have committed themselves to these various studies.

Plant Physiology Unit

We also need to get our Plant Physiology Unit fully operational. This unit is in essence a very high-tech greenhouse. We have grown labeled rice, soybeans, and peas hydroponically in small batches to prove our methods. We could grow other food crops as well. However, we need additional funds to grow larger quantities and to process them into formula and food for our studies.

By using this unit to produce foods that are labeled with stable isotopes, we will be able to determine how a baby actually uses real foods and how that bioavailability is impacted by processing methods. Most nutrition studies focus on nutrients, but farmers, food processors, and consumers are concerned with food, not just nutrients. Bridging that gap between food and nutrients is an important part of our work.

We are working closely with scientists, both with ARS and universities, at other locations on a number of projects of mutual interest. For example, stable isotope technology allows us to gather, as a byproduct of our need to grow food plants with labeled nutrients, some intriguing information on how and when food plants grow and use nutrients. Because of the need to use stable isotopes efficiently, we measure when fertilizer is used to make leaves and when it is used to make soybeans, for example. This has obvious implications for production agriculture.

Also, ARS rice researchers now have new information to explore based on the CNRC's ability to grow rice hydroponically at about twice the yield gotten in the field. Rice is one of many crops where researchers have not established a theoretical maximum yield. As with the MRU, the basic Plant Physiology Unit facility is already in place but additional funds are needed to fully staff and operate it.

Cholesterol

The CNRC cadre of multi-disciplinary efforts includes USDA scientists who are working with specially-bred pigs. Among other things, they are coming up with some intriguing findings on cholesterol.

Cholesterol is absent from current infant formulas, but is present in very high levels in mothers' milk. Now we have shown that cholesterol is vital for brain development. Piglets from low-cholesterol bloodlines become retarded on low-cholesterol diets -- you can actually pick them up without any fuss. As many of you know from experience, handling a normal piglet is more like grabbing a live electrical wire.

While both human babies and piglets can apparently make their own cholesterol, the pig results indicate that the genetic potential may be present for problems among some humans. We also think that dietary cholesterol in infancy may improve the body's ability to handle cholesterol in adulthood. This work could lead to major changes in infant formulas and recommendations for dietary cholesterol early in life.

These pig experiments provide an important example of nutrient-gene interrelationships because they demonstrate a genetic increase in needs for dietary cholesterol. This genetically-based individuality of food needs sets a priority for future investigations on human and animal nutrient-gene relationships. It raises a new question -- will there be a time in which we can target genetically-susceptible children for specific dietary intervention?

Breastfeeding

The CNRC has been a leader in promoting breastfeeding for many years. CNRC scientists have shown that the amino acid pattern in mother's milk is carefully tailored to the needs of the infant at any given age, and that this is true in many species besides humans. Infant formulas now in use seek to avoid shortages of any amino acid by providing about twice as much total protein as mother's milk. The baby must burn off the excess amino acids, which is one reason why formula fed babies have higher temperatures and heart rates, sweat more, etc. This line of research could lead to formulas that are better tailored to the age of the infant.

CNRC work has also proven that breast fed babies digest milk sugars more efficiently than do formula fed infants. A baby takes in about three times as much energy for its size as an adult does. A baby's colon acts like the rumen of a cow in fermenting and absorbing the extra sugar. This has implications in diarrhea treatment, for example, since diarrhea prevents the fermentation and sharply reduces the baby's energy intake.

Infant Formulas

We are also working to improve infant formulas. Among other things, we are exploring differences in energy metabolism between breast- and formula-fed infants. Formula fed babies work harder, have higher temperatures and heart rates, and have different sleep patterns. We have already identified two growth factors in human milk, and one of these has already been licensed for studies that may lead to its addition to baby formula.

We are now working with Texas A&M University to make infant formula from labeled soybeans grown at the CNRC. We are also working with scientists at Cornell to put labeled nutrients into the artery leading to a cow's udder. This should not only tell us more about the cow's metabolism, but should also produce labeled milk which we can then make into formula. These labeled formulas can then be used in feeding studies to determine more precisely how babies use these foods to grow.

Nutrition and Health

The CNRC's mission is to find ways to produce healthier children today and healthier adults tomorrow. These studies will also help the nation's agricultural industry to produce foods more efficiently, to document the nutritional value of those foods, and to tailor those foods as necessary to better meet the needs of future generations. A natural outgrowth of successful research is a move towards food and nutrition education, to share that information with the public, and part of our effort at the CNRC is dedicated to that purpose, although research is our primary mission.

We are but a part of the food and nutrition programs within the USDA. We believe that those programs are working. GAO has estimated that WIC program benefits provided to pregnant women reduce the incidence of low birthweight babies by 25%, and that they reduce by 44% the incidence of very low birthweight babies (3.3 pounds or less).

However, we can do a better job. Karen Konzelmann, who is noted for her work with the "Have a Healthy Baby" program while with the Indiana Extension Service, tells of an farmer and county commissioner who explains that preventing 5 low birthweight infants will pay for his country extension budget for the entire year. Ms. Konzelmann is now National Program Leader for Infant and Maternal Health and has been placed at the CNRC by the Extension Service to serve as a link between CNRC and extension workers throughout the country. Programs like this illustrate the fact that as penetration, or the ability of extension and other programs to reach target populations, improves, then the quality of the information and its delivery becomes relatively more important.

Coordination and Quality in Government Programs

I believe that the effectiveness of our federal, state, and local assistance programs could be vastly improved by better coordinating the work of the various agencies involved. If we had a more client-oriented system where programs like WIC, EFNEP, and Maternal Child Health Services and other federal, state, and local assistance programs worked together closely and where eligibility procedures were simplified and standardized then I think that our results would be much improved. Feeding programs, for example, can be conduits for needed information about food and health and can also serve to reach more children with needed immunizations. Both basic and applied nutrition research should be an integral part of that system, as seen be the fact that research results just from the CNRC alone could well have a major impact on basic food packages provided through programs such as WIC. As I said before, the quality of the aid becomes paramount once the quantity is there, and research is going to be the key factor in determining what constitutes a quality package of food assistance.

Human Nutrition Research Needs

I believe that there is also a need for improvement in the support of human nutrition work within the ARS. We are gaining new knowledge and rapidly opening new areas for study, but the research budgets for the ARS human nutrition centers have been stagnant even though our costs are going up. The House again provided only level funding for the ARS nutrition centers in the FY 1994 agricultural appropriations bill.

As I mentioned earlier, there is a vast void in our knowledge concerning the food needs of pregnant adolescents. More research is also needed concerning the nutritional needs of the fetus during development. The effects of what we eat on brain and nervous system development and the development of the gastrointestinal tract are virtually unexplored. Research also is needed to identify the pediatric antecedents of adult disease -- e.g., do obesity, heart disease, and cancer have their origins in childhood and should dietary interventions to reduce the incidence of these deadly diseases start early in life?

Another pressing research need across all areas of nutrition concerns the consequences of inadequate, inappropriate, or excessive food intake. One of the drawbacks in effectively educating people on what they need to eat is the inability to answer obvious and logical questions concerning the consequences of adapting or not adapting particular recommendations concerning what foods should be eaten and in what amounts.

The ARS human nutrition research centers are uniquely well-suited to address these research problems. We are the only place where such research is being conducted under a long-term strategic plan. CNRC research is peer-reviewed, and thus is held to the highest standards. We compete successfully for research funds through peer-reviewed competitive processes such as at the National Institutes of Health, and all CNRC research is also overseen by an outside advisory board composed of top nutrition researchers from around the world.

Conclusion

The production and consumption of food and its relationship to health has historically been a key part of the mission of the Department of Agriculture. In this, the centennial year of USDA human nutrition research, I believe that it is time to rededicate ourselves to that effort.

Farmers and ranchers now more than ever know that they must produce food that will meet the customer's needs. They have seen their markets buffeted by the winds of public opinion, often fanned by the musings of people who are heavy on opinions and light on facts. The mission of USDA is to find facts and to use them to help both producers and consumers of food.

Marketing is already recognized as an important part of that mission, and I believe that the linkage between food and health should and will play an even larger role in USDA's mission in the years to come. The federal budget is not just a zero-sum game, it is now a shrinking-sum game. If we place a higher priority on USDA programs dealing with food and nutrition research and delivery, then I believe that we will see substantial savings in the medical portion of the federal budget. That will help both our budget and our people.

We at the CNRC link agricultural production and food processing together with medicine to make mothers and their babies healthier. These healthy children will, in turn, have an opportunity to contribute to the future of this country rather than draining our medical and fiscal resources. We are proud to take our place in that line of USDA researchers stretching back a century, to the pioneering work of Attwater, and moving forward into a better and healthier future for all our people.

Dr. Buford L. Nichols, Jr., M.D.
Response to Written Questions
July 15, 1993

1. How important is nutrition in preventative health care today?

The recognition of the importance of nutrition to good health is firmly established. Further, new scientific information is showing in more detail the linkages between diet and diseases. Of the 10 leading causes of death in the United States, five -- heart disease, cancer, strokes, diabetes, and atherosclerosis -- are attributable to diet. These five diseases accounted for 71% of all deaths in 1987.

Prevention of disease is the basic objective of the study of nutrition. Prevention is almost always cheaper than treatment. Increasingly tight budgets and the debate over the cost of our health care system may force an increased emphasis on prevention programs instead of our current heavy reliance on acute care programs. In the health arena prevention programs, especially including nutrition programs, have a very high rate of return on investment. The WIC program, for example, has been estimated by the General Accounting Office to save $3.50 for every dollar invested in providing WIC benefits to pregnant women.

2. Many individuals claim that more applied research is needed and less inquiries into fundamental science. Please describe how some of the basic metabolic research conducted at the CNRC relates to consumers.

Basic research provides the foundation of information on which applied research is conducted, as well as many of the tools with which that applied research is conducted. The thesis behind the question is that, somehow, going directly to applied research will provide faster, cheaper answers. The truth is often quite the opposite. Basic research provides the direction, i.e. shows the way, that applied research should go. Without this direction, applied research is often inefficient, incomplete, and ineffective.

Many of our most significant gains from research have flowed from breakthroughs in basic research. History has shown that both basic and applied scientific research are needed, along with education programs in order to make new discoveries and translate them into a form that will benefit society. Basic research gives us the tools with which to answer questions that are important to the health of people throughout the world. Basic research done at CNRC has produced a number of payoffs, such as the newly-developed ability to accurately measure cholesterol synthesis, and promises even more in the future.

Cholesterol

Cholesterol synthesis in the body can now be accurately measured using stable (non-radioactive) isotope technology which was developed by CNRC scientists. This allows studies which were impossible just a few years ago. For example, it has long been known that people who consume soy protein instead of meat protein have lower blood cholesterol levels, but we do not know why. The American Soybean Association is helping to fund a study using this new technology to find out whether this effect is from the cholesterol in the diet or from some factor in soybeans that changes the rate at which cholesterol is either synthesized or broken down in the body.

In proving the effectiveness of the new methods to be used in the study of soy and meat cholesterol, we have already found that formula-fed babies manufacture over 3 times as much cholesterol as do breast-fed babies, and that blood cholesterol levels are significantly higher for breast-fed babies. Cholesterol is absent from current infant formulas, but is present in very high levels in mothers' milk.

We think that dietary cholesterol in infancy may improve the body's ability to handle dietary cholesterol in adulthood, which in turn impacts on diseases such as atherosclerosis. It may be that a lack of dietary cholesterol causes formula-fed babies to emphasize making cholesterol instead of controlling it, and that this may lead to higher blood cholesterol later in life. This theory has been developed from animal models, but could not be tested in humans until CNRC scientists developed these new methodologies using stable isotopes. We hope to do a study of cholesterol synthesis in breast- and formula-fed infants over time using this new technique. This work could lead to major changes in infant formulas and recommendations for dietary cholesterol early in life.

In the written testimony reference was made to our research on pigs, where a lack of dietary cholesterol produced brain damage in genetically low-cholesterol pigs. Although normal pigs, like humans, can make cholesterol, these experiments indicate that the genetic potential may be present for problems among some humans. This example of genetically-based individuality of food needs will lead to more such investigations, and it also raises the possibility of targeting genetically-susceptible children for specific dietary intervention.

Protein Requirements in Sick Children

All over the world common illnesses, such as measles, often contribute to malnutrition and more serious infections later on. However, little is known about the nutrient needs of sick children. CNRC is initiating a study in which the protein needs of children will be measured before and after a routine measles vaccination (which often causes a mild fever) in order to find out whether they need more or less protein when they are ill. This will be done by feeding labeled protein and measuring the amounts excreted and exhaled. (Metabolized protein is calculated by measuring the amount of labeled carbon dioxide in the breath).

Calcium Requirements for Girls

In the written testimony we summarized CNRC research showing that girls need much more calcium, and at much younger ages, than previously thought. We have also found that more than 85% of all girls over age 11 are not getting even the currently-recommended amounts of calcium. Dairy products supply about 2/3 of all dietary calcium, so this research has obvious implications for USDA commodity programs as well as for USDA feeding programs such as school lunch, WIC, and Food Stamps. It also could have a major health impact in reducing osteoporosis later in life.

Protein Requirements for Nursing Mothers

Our new technology is also playing a pivotal role in changing the protein recommendations for nursing mothers. Our work has shown that nursing mothers need 33% more protein than the current recommended amount. These results have been sent by the Food and Nutrition Service to state nutritionists and may well result in an increase in the amount of protein provided to women in WIC programs.

We also have indications that recommendations for other nutrients for nursing mothers may be too low as well.

Premature Infants

The CNRC has made a major impact in improving the feeding of premature infants. It costs about $1,000 per day to care for premature babies -- $2,000 if they are in intensive care. We are getting many of these preemies out of the hospital up to 10 days sooner by using new formulas and feeding strategies, such as using mother's milk in the feeding of premature infants. This subject was also mentioned in the testimony.

Teenage Pregnancies in Different Ethnic Groups

CNRC is conducting a ground-breaking study of adolescent growth and nutrition in various ethnic groups. We feel that this study will have major implications for such issues as adolescent pregnancy. We know that teenaged mothers tend to have smaller babies, and low birthweight babies are a particularly severe problem among black teenagers. This study is examining adolescents from four major ethnic groups to establish baseline values for growth and energy needs, with the objective of using those for subsequent studies of adolescent pregnancies.

As mentioned in the testimony, we know very little about the nutritional needs of pregnant adolescents, about whether and how competition for food may occur between the needs of a growing girl and the needs of a growing fetus. Low birthweight and poor growth are associated with increased blood pressure, chronic lung disease, coronary disease, and diabetes later in life.

Biological Effects of Human Milk Proteins

Stable isotope technology developed at the CNRC allow us to look at processes which cannot be measured any other way, and some very fundamental questions are being raised. For example, some milk proteins in the diet are completely broken down during digestion and then manufactured again as needed. This may well indicate that the closely-regulated proteins are so important that no flexibility can be allowed in the concentrations of those substances maintained in the body. Only stable isotope technology can accurately determine what happens to individual molecules inside the body and so open this unique new window into human metabolic processes.

We have also found that other proteins in mother's milk are apparently absorbed and then excreted intact. If they are not being metabolized, then they must serve some function other than the basic building of tissue. We believe that some of these proteins may play a role in triggering growth and development in the baby's nervous, digestive, immune, and other systems. Identifying the uses to which these proteins are put would allow them to be synthesized and added to infant formula.

Infant Formula

As discussed in the testimony, we have produced labeled soybeans and as working with scientists at Cornell to produce labeled milk which we can then make into formula. These labeled formulas can then be used in feeding studies to determine more precisely how babies use these foods to grow. Mother's milk, soy formula, and cow's milk formula all have different compositions, and understanding how the baby digests and uses each of these should lead to improvements in feeding recommendations and in the composition of infant formulas.

Breastfeeding

The CNRC has been a leader in promoting breastfeeding for many years. As we learn more about breastfeeding, we also may allow improvements to be made to infant formulas. For example, we have a pending patent with regard to the use of lactoferrin, which is a protein found in mothers' milk. Lactoferrin appears to stimulate development of the infant's digestive system, and may in part account for the fact that formula-fed babies do not develop as fast and have more health problems in this area than do breast-fed babies. This discovery is now being developed by a commercial company as a possible addition to infant formula.

Infant formulas now in use seek to avoid shortages of any amino acid by providing about twice as much total protein as mother's milk. CNRC scientists have shown that the amino acid pattern in mother's milk is carefully tailored to the needs of the infant at any given age, and that this is true in many species besides humans. This line of research could lead to formulas that are better tailored to the age of the infant.

CNRC work has also proven that breast fed babies digest milk sugars more efficiently than do formula fed infants. A baby takes in about three times as much energy for its size as an adult does. A baby's colon acts like the rumen of a cow in fermenting and absorbing the extra sugar. This has implications in diarrhea treatment, for example, since diarrhea prevents the fermentation and sharply reduces the baby's energy intake.

3. Explain how the presence of an Extension specialist at the CNRC helps extend research results.

The Cooperative Extension Service (CES) is a nationwide educational network that links research, science, and technology to the needs of people where they live and work. Extension's purpose is practical education for dealing with issues critical to the nation's future. Extension education combines the expertise and resources of federal, state, and local governments. CES has the reputation of being a reliable and impartial source of research-based educational and information programming.

CES has several specific advantages related to disseminating nutrition research. They are known for communicating in lay language and presenting nutrition information in the practical context of "real food," and they have the ability to electronically distribute information to all 50 states and to U.S. territories. In other words, they are a key part of the interface which translates scientific research information into language that the public can understand and assimilate.

A veteran Extension educator with extensive experience in reaching and teaching pregnant adolescents and adults was selected and located at the CNRC in the Texas Medical Center. She has begun establishing contacts and relationships with scientists and educators within the medical and research communities. Linkage are also being formed with other Federal agencies, universities, and organizations which focus on issues related to maternal and child health. An education and research Needs Assessment is being conducted of all 50 States and territories with an emphasis on issues involving culturally diverse and limited resource populations.

Careful study of the results of the Needs Assessment will provide a specific focus for CES to use in addressing issues across the country. CES believes that these results could help them in the development of educational materials to meet community needs, as well as the targeting of specific groups. Other significant outcomes would be identifying staff development and training needs for those who teach in local communities - both rural and urban. Additionally, feedback from Extension locations could help CNRC in identifying future research needs.

In summary, we believe that this relationship with the Extension Service offers a way to speed the dissemination and use of CNRC research to improve the health of U.S. mothers and babies and to provide savings of health care dollars spent on and by American families.

4. What should be the relationship between nutrition research and extension in a reorganized USDA?

This is a difficult question to answer without knowing the details of the re-organization plan. We do know, however, that the CNRC will continue with its fundamental research mission. We also want our research to be used, so we will also work to transmit that information to health care professionals, members of the media, and the public at large. That requires making the step from information about nutrients to information about foods, and then helping in the effective delivery of that information to the target population through all available means. We will continue to use the very helpful services of the Baylor College of Medicine Public Affairs Office in this effort as well as the Extension Service, other USDA agencies, and other means which may become available.

Research centers such as the CNRC exist in order to produce information that can be used to help improve the well-being of our citizens. The Extension Service was created in order to get needed information to the end user as quickly and effectively as possible. Since both CNRC and Extension play a role in nutrition, we would hope that CNRC could work closely with the Extension Service. Similarly, we at the CNRC want to work closely with and provide assistance to other nutrition-related programs within USDA and within other government agencies.

5. What is the single greatest need to improve nutrition research and education in the future?

The greatest needs is funding of faculty training and development in both medical and graduate schools. A long-term commitment to research funding in the area of nutrition is necessary in order to attract well-qualified students into nutrition as a career. An increased emphasis on nutrition education as part of the basic education of medical professionals, including but not limited to doctors, is also needed.

TESTIMONY

OF

IRWIN H. ROSENBERG, M.D.

PROFESSOR OF MEDICINE AND NUTRITION
AND
DIRECTOR, USDA HUMAN NUTRITION RESEARCH CENTER ON AGING
TUFTS UNIVERSITY
BOSTON, MA

PRESENTED TO

SUBCOMMITTEE ON DEPARTMENT OPERATIONS & NUTRITION
COMMITTEE ON AGRICULTURE
U.S. HOUSE OF REPRESENTATIVES

JULY 15, 1992

Mr. Chairman:

My name is Dr. Irvin Rosenberg, and I am a Professor of Medicine and Nutrition and Director of the U.S.D.A. Human Nutrition Research Center on Aging at Tufts University in Boston. I want to thank you for this opportunity to testify. In the 15 years since Congress first appropriated funds to the Department of Agriculture to establish this center, we have been studying the nutritional needs of the elderly and the dietary requirements for maintaining health and preventing disability and disease of our aging population. At the beginning of this century, 1 in 25 Americans was over the age of 65, and early in the next century, 1 in 5 Americans will be 65 or over. Older Americans are the fastest growing segment of our population, and they are the ones who are at the highest risk for degenerative conditions of the vascular system, central nervous system, the eyes and other sensory organs, the immune system, and the muscular skeletal systems that can lead to loss of function to disability and to the loss of independence and quality of life so important to our older years. On the other hand, the maintenance of these functions can result in a vigorous, independent and enriching mature segment of our lives.

The maintenance of vigorous function and activity throughout the adult years and into the elderly years depends upon many factors including our genetic heritage, but to a very great extent on our life-style, especially with respect to nutrition and related physical activity. Our research in the recent past has addressed the way in which proper diet and nutritional practices throughout the adult life span, but particularly in the middle and older years, will maintain health and prevent disease and degenerative conditions.

We continue to seek ways of assessing the nutritional and health status of older Americans, who, like infants and children at the other end of the spectrum of life, are at increased risk of under-nutrition and malnutrition, but in this case because of their changing physiological status of elders and for social factors as well.

Our research focuses not only on the needs of older Americans but on older Americans themselves. Thousands have participated in our studies over the past decade, and they have been some of the best agents for educating their peers about the importance of proper nutrition and the maintenance of health in the older years.

Dietary Requirements for Calcium and Vitamin D

We have conducted studies in American women before and beyond menopause to study the specific relationships among dietary factors and physical activity in the maintenance of a strong skeleton that will be resistant to fracture and compression. Osteoporosis seriously affects more than 1.3

million American women at an expense of $10 billion in health care costs. Our studies have shown that after those first few crucial years beyond menopause, meeting dietary needs for calcium is critical for the prevention of loss of calcium from the skeleton, particularly in that third of older women who have the lowest intakes. Equally important is the research that shows that we must meet our requirements for vitamin D in that same population if we are to prevent bone loss since this population has special requirements imposed by declining ability to make vitamin D in the skin in the presence of sunlight and some loss of sensitivity to the actions of the vitamin that controls the absorption and utilization of calcium from our diets. Our investigators have also documented the importance of physical activity to stimulate the skeleton for maintenance of body calcium and also to maintain the strength and function of our muscles that are so important for balance in the prevention of falls that lead to fracture and disability.

Fats and Oils and Cardiovascular Health

We have worked to define the healthiest mix of dietary fats which influence blood cholesterol and related lipids and the risk of degenerative conditions of the cardiovascular system. Our scientists have been instrumental in the setting of national guidelines for the prevention of heart disease under the National Cholesterol Education Program. Heart disease, as you know, is our number one cause of death and medical expenses have been estimated as $65 billion per year.

Physical Activity and Muscle Strength

We have also studied the interaction of nutrition and specific forms of exercise, and have developed programs that are effective in helping older adults maintain their lean muscle and associated physical strength and mobility. These same exercise programs can greatly diminish the risk of late-life onset of diabetes as well as cardiovascular disease and at the same time foster a vigorous lifestyle that maintains independence with less need for long-term care.

Vitamins and Immune Function

We have identified and characterized the role of several nutrients in our diets, including vitamin B6, vitamin E, and zinc for maintaining a sturdy immune system in older adults. Dietary prevention of the declining function of our immune system with aging could help reduce the risk of infectious disease and even that of cancer.

Nutritional Cataracts

We have found an association between several dietary factors, especially the antioxidant nutrients, vitamin C, vitamin E, and beta carotene, and reduced risk of cataract, a condition that accounts for more operations in the elderly than any other at a cost of $4 billion annually as well as a great degree of loss of function and quality of life.

Nutrition and Mental Function

No condition is more devastating to the quality of life of the older American and that of his or her own family than the loss of cognitive function, mental alertness and memory. While many conditions contribute to the loss of cognitive function in some of our older population, our research causes us to emphasize the importance of nutritional factors including dietary vitamins for the maintenance of healthy central nervous system functions, especially in the elderly. We have found that as many as 25% of older Americans may be at risk of certain vitamin deficiencies including vitamin B12, because of changing absorptive and physiologic functions with age. Vitamin B12, vitamin B6. and folate in the diet in adequate amounts can prevent, and at times reverse, some of the cognitive and neurologic impairment seen in some older Americans. Even more importantly, maintenance of dietary adequacy with these and related nutrients could prevent some disabling conditions affecting mental function.

Communicating to Older Americans

These and related research findings showing that healthy choices from the abundance of food grown on our farms can contribute to the prevention of disability and specific forms of under-nutrition and thereby to the maintenance of vigorous older years, have been communicated to the public in many ways. By interacting with other federally-sponsored programs that study and track the behavior of older Americans, we can determine that some of these messages are affecting behavior in the direction of better nutrition and health. The work described above, published in scientific journals and books, has been widely quoted in the public press and also disseminated through the publication and education efforts of the Department of Agriculture. Hundreds of newspaper and magazine articles in the past year alone have described these research accomplishments and some of the positive effects of proper nutrition and exercise have been the focus of network television programs over a dozen times in the past year. We have used the Tufts Diet and Nutrition Letter, with hundreds of thousands of subscribers, to disseminate the positive results of nutrition research to the country at large, and we have used our publications and networking through our own research volunteers and their organizations for the distribution of information about the benefits of proper nutrition and physical activity.

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In conclusion, the research at the USDA Human Nutrition Research Center on Aging at Tufts University can be looked upon as an example of a very productive and fruitful association between government and the private sector since our research and its dissemination to the public depend critically on the utilization of resources and expertise at both the government and university level.

Research and education programs in nutrition need our highest national priority if we are to prevent disability and maintain productivity. I believe that it is possible over the next decade that our investment in proper nutrition and physical exercise among our aging population will fundamentally alter our concepts and costs of health and health care. We must not miss that opportunity. To invest properly in human nutrition and health, we need more precise information on what our elders are eating in different situations and locations. We need to assess the impact of our feeding programs on health and function. We need to know a great deal more about the relationship between dietary factors and the maintenance of cognitive function and prevention of dementia and cerebrovascular disease. We need to examine our techniques for introducing this information into medical practice so that diet and nutrition become an integral part of health care and health maintenance.

(Attachment follows!)

U.S. House of Representatives
Committee on Agriculture
Subcommittee on Department Operations and Nutrition

APPENDIX II

Testimony Of:
IRWIN H. ROSENBERG, M.D., DIRECTOR

UNITED STATES DEPARTMENT OF AGRICULTURE
HUMAN NUTRITION RESEARCH CENTER ON AGING
TUFTS UNIVERSITY

July 13, 1993

FY1993 SELECTED

RESEARCH ACCOMPLISHMENTS

- Vitamin E supplements restored impaired acute phase immune responses and reduced signs of oxidative damage following an intense bout of eccentric exercise in healthy but sedentary older men.
- Beta-carotene supplementation improved the antioxidant capacity of plasma in healthy older women and decreased the susceptibility of phospholipids to oxidative modification.
- Vitamin E supplementation in healthy young and older adults decreased plasma lipid peroxide concentration and increased cellular immune responses assessed by delayed-type hypersensitivity skin tests.
- The ratio of carbon to oxygen was determined to be an effective measure of body fatness that is not sensitive to hydration of lean body mass. This new method created a valid and precise measure of body composition in aging and illness.
- The immune system was found to directly affect resting energy expenditure and thus ultimately affect body composition.
- Knee height was demonstrated to be a valid and accurate method and a practical alternative index to height when comparing the body composition of individuals and populations.
- In adults with chronic inflammation, progressive resistance exercise was found to lead to an increase in lean body cell mass as well as improvements in strength and functional status.
- The active metabolite of vitamin D, 1,25-dihydroxyvitamin D, stimulates calcium absorption and has direct favorable effects on bone whereas parathyroid hormone (PTH) promotes bone loss.
- Women who walked seven miles or more per week had higher bone density in the legs, trunk, and whole body than those who walked less than one mile per

week. Walking at least one mile per day appears to be an effective means of reducing bone loss.

- A new approach was defined for establishing vitamin D requirements through the observed relationship between vitamin D intake and serum concentrations of 25-hydroxyvitamin D [25(OH)D] and parathyroid hormone (PTH). In a double-blind trial in women with adequate calcium intakes, a 400 IU vitamin D supplement retarded bone loss in the winter and provided an overall benefit at the spine.
- Body composition was found to change with season. In the summer/fall, lean and bone tissue mass increase and fat decreases in the arms, legs, trunk, and whole body. In the winter/spring these changes reverse. Overall, there is a loss of lean tissue mass in the legs and an increase in fat tissue mass in the trunk.
- In healthy postmenopausal women, weight was found to be inversely related to rate of bone loss from the spine in those up to but not beyond 106% of ideal body weight. This finding suggests that thinness is a risk factor for osteoporosis, rather than that obesity protects against bone loss.
- In healthy late postmenopausal women, current smokers were found to have accelerated rates of bone loss from the radius, with similar trends at the spine and hip. Smokers had a lower mean level of serum calcium and lower mean fractional calcium absorption than nonsmokers. Thus, the adverse effects of smoking on bone health are not limited to the young adult population.
- Clinical investigations indicate that the current RDA for energy substantially underestimates the usual energy needs of healthy elderly as well as young adult men.

- Energy regulation following underfeeding was found to occur primary by adaptive variations in energy intake rather than expenditure.
- Data from three population samples demonstrated positive correlations between plasma vitamin C and HDL cholesterol levels independent of other determinants of HDL cholesterol such as sex, body mass index, and smoking. Further, blood pressure decreased with increasing plasma vitamin C levels. Vitamin C levels in the human lens and aqueous humor was dramatically increased by vitamin C supplementation.
- Excentric cleavage mechanism of beta-carotene was found to exist in the intestines of humans, monkeys, ferrets and rats. The same enzyme that primarily cleaves the central double bond of the beta-carotene molecule also cleaves the molecule at several other double bonds resulting in the formation of a mixture of products.
- An increased number of bacteria in the stomach and upper small intestine was found to cause poor absorption of food-bound vitamin B12. Killing or reducing the number of bacteria in the stomach and upper intestine normalizes the poor absorption of food bound vitamin B12.
- The localization of carbohydrate responsiveness of lipogenic gene expression to periportal hepatocytes using *in situ* hybridization has been accomplished.
- Hepatocytes damaged by hypoxic injury have been found to be replaced by cells regenerating from the midlobular region of the liver.
- A system for developing cataracts was established using hyperbaric oxygen or hyperoxia exposure of guinea pigs. Preliminary data indicate that animals with low ascorbate status are more subject to cataract formation induced by oxygen exposure.
- A rat was developed and bred which requires ascorbate.

- A clear definition of normal ranges of LDL particle sizes has been developed, and documentation provided that LDL particle size can be altered by changes in triglyceride levels and that LDL particle size is not an independent coronary heart disease (CHD) risk factor.
- A clear definition has been developed for familial lipoprotein disorders associated with premature CHD and documentation of their prevalence in CHD patients provided. These familial disorders include: [a] Lp(a) excess, [b] dyslipidemia (low HDL cholesterol, high triglycerides), [c] combined hyperlipidemia (elevated LDL and triglycerides), [d] hypoapobetalipoproteinemia (elevated apoB), [e] hypoalphalipo-proteinemia (low HDL), and [f] hypercholesterolemia.
- The significance of lowering of LDL cholesterol and raising of HDL cholesterol in post-menopausal women with estrogen replacement therapy has been demonstrated.
- Hydrogenation has been found to decrease the hypolipidemic effect of corn oil relative to saturated fat.
- Hypochlorhydria, a frequent condition in the elderly population, has been found not to lead to an impairment of mineral absorption as previously proposed.
- Long-term (6 months) feeding of diets low in fat and cholesterol and enriched in (n-3) PUFA decreased production of IL-6, TNF, granulocyte-monocyte colony stimulating factor, lymphocyte proliferation and the delayed hypersensitivity skin reaction. These effects were not observed when essentially the same diet [but low in fish-derived (n-3) PUFA] was fed for 6 months.
- Vitamin E deficiency caused by malabsorption in a patient decreased IL-2 production, lymphocyte proliferation and delayed hypersensitivity skin test. All of these parameters were improved following vitamin E repletion.

Statement of

Catherine E. Woteki, Ph.D., R.D.
Director of the Food and Nutrition Board
Institute of Medicine/National Academy of Sciences

Good morning, Mr. Chairman and members of the Committee. I am Director of the Food and Nutrition Board, a division of the Institute of Medicine of the National Academy of Sciences. The Food and Nutrition Board (FNB) was established in 1940 to address issues of national importance that pertain to the safety and adequacy of the nation's food supply. In its fifty years of existence, the Board has examined the science and made recommendations to improve food quality and safety, thereby contributing to improving public health and preventing diet-related diseases. As the country's health profile and status have changed, the emphasis of the Board's activities has shifted in recent years from concern primarily about nutritional deficiencies to excesses or imbalances in food components and their effects on health. The Board has become increasingly concerned with the translation of available scientific knowledge of food composition and human nutrition to the improvement of public health.

In my testimony, I will draw upon studies conducted by the Food and Nutrition Board to focus on four of the questions posed by the committee:

- What are some examples of recent nutrition research that has been appropriately and well communicated to consumers?
- What nutrition research is currently being done in "at risk" population groups and how are the results of this research being communicated to the appropriate populations of consumers?
- What level of nutrition expertise is found among medical personnel and how can it be improved?
- What are the priority needs in nutrition education and research today?

The twentieth century has witnessed noticeable shifts in the direction of nutrition programs, policy, and research in industrialized nations--from identification and prevention of nutrient deficiency diseases in the first three decades of the century to refinement and application of knowledge of nutrient requirements in the subsequent two decades. In the second half of the century, emphasis on nutrient deficiency diseases decreased as the major causes of mortality shifted from infectious to chronic diseases. Attention then turned to investigating the role of diet in the maintenance of health and the reduction of the risk of such chronic diseases as heart disease and cancer. Subsequently, epidemiologic, clinical, and laboratory research demonstrated that diet is one of the many important factors involved in the etiology of these diseases. During the past few decades, scientists have been faced with the challenge of identifying dietary factors that influence specific diseases and defining the mechanisms by which they contribute to disease. Simultaneously, public health policymakers, the food industry, consumer groups, and others have been debating how much and what kind of evidence justifies giving dietary advice to the public and how best to mitigate risk factors on which there is general agreement among scientists.

Communication with the Public

The federal government has made recommendations for improving the American people's diet for almost a century. Early dietary guidance was directed mainly at the avoidance of deficiency diseases, with little attention given to reducing the risk of chronic conditions other than obesity. However, there have been substantial advances in the past 25 years in understanding the relation of diet to health. Consensus has developed about the role of diet in the cause and prevention of chronic diseases. The Food and Nutrition Board's report *Diet and Health: Implications for Reducing Chronic Disease Risk* and the *Surgeon General's Report on Nutrition and Health* reached similar conclusions about dietary modifications needed to reduce the risk of diet-related chronic diseases.

In 1991, a Food and Nutrition Board committee reached the conclusion that the main challenge no longer is to determine what eating patterns to recommend to the public (although, admittedly, there is more to be learned), but how to inform and encourage the population to eat to improve its chance for a healthier life. The committee's report *Improving America's Diet and Health: From Recommendations to Action* concludes that simply issuing and disseminating recommendations is insufficient to produce change in most people's eating behaviors.

Although federal and state programs exist to implement the government's Dietary Guidelines, and the private sector produces and publicizes food products to help people meet the recommendations, there is a clear need for comprehensive and coordinated actions to improve America's diet and health. This goal will be met in the following ways:

- enhancing awareness, understanding, and acceptance of dietary recommendations;
- creating legislative, regulatory, commercial, and educational environments supportive of the recommendations; and
- improving the availability of foods and meals that facilitate implementation of the recommendations.

The general tactics for increasing the prevalence of healthful eating patterns are limited. We can alter the food supply by subtraction (e.g., reducing the fat in meat and cheese), addition (e.g., appropriate fortification of foods with nutrients), and substitution (e.g., replacing some of the fat in margarine with water). We can alter the food acquisition environment by providing more food choices that help consumers meet dietary recommendations, better information (e.g., more complete and interpretable product labeling), advice at points of purchase (e.g., tags indicating a good nutrition buy in supermarkets or cafeterias), and more options for selecting healthful diets (e.g., better food choices in vending machines and restaurants). Lastly, we can alter nutrition education by changing the message mix (e.g., presenting consistent messages in education programs, advertisements for products, and public service announcements) and by broadening exposure to formal and nonformal nutrition education (e.g., mandating education on dietary recommendations from kindergarten through grade 12, in health-care facilities, and in medical schools).

Desirable dietary changes will most likely occur when all these tactics are undertaken in complementary, mutually reinforcing ways. However, there is insufficient research on their individual effectiveness or how best to employ them. The report makes recommendations to government, the private sector, health-care professionals, and educators as to how to implement the dietary recommendations, and on the research needed to establish a better base for designing cost-effective, efficient, and effective implementation strategies. I have appended a copy of the report's summary to my testimony.

Research in At-Risk Populations

In the last four years, the FNB has published three reports that review the scientific evidence concerning the role of diet in health. They recommend research for four areas in which subgroups of the population may be at risk of ill health. The four research areas are:

- gender and ethnic differences in nutritional status,
- gender and ethnic differences in nutrition as related to chronic disease,
- nutritional needs during pregnancy, and
- nutritional needs during lactation.

In recent decades, scientists have identified many dietary factors that influence the incidence and course of specific chronic diseases and have attempted to define the pathophysiological mechanisms. The Committee on Diet and Health, assembled by the Food and Nutrition Board in 1984, undertook a comprehensive analysis of the scientific literature on diet and the spectrum of major chronic diseases and assessed the strength of the evidence on associations of diet with health. In its report, Diet and Health, the Committee concluded that diet influences the risk of several chronic diseases: atherosclerotic cardiovascular diseases, hypertension, certain forms of cancer (especially cancers of the esophagus, stomach, large bowel, breast, lung, and prostate), dental caries, chronic liver disease, and a positive energy balance produces obesity and increases the risk of noninsulin dependent diabetes mellitus.

A key question is to what extent gender and ethnicity interacting with other genetic traits and environmental factors including diet affect health. Most chronic diseases whose etiology and pathogenesis are influenced by nutritional factors have genetic determinants. Hypertension, obesity, hyperlipidemia, atherosclerosis, and various cancers appear to aggregate in families and also occur in greater proportions in males or females. For example, coronary heart disease (CHD) death rates in men are three times greater than in women in such high-incidence countries as the United States, the United Kingdom, northern European countries, New Zealand, and Australia. These sex differences are small after women pass menopause and in such low-CHD-incidence countries as France and Japan. In countries where CHD deaths have declined, proportional declines have generally been steeper among women than among men.

The Committee on Diet and Health identified seven categories of research that, when taken together, reflect a conceptual framework for interdisciplinary collaborative research that encompasses different kinds of investigations. The range includes short- and long-term experiments in vitro and in vivo, food consumption surveys, food composition analyses, descriptive and analytical epidemiologic studies, metabolic studies and clinical trials in humans, and social and behavioral research. The specific research recommendations are elaborated on in the report. Briefly, the seven categories of research are:

- Identification of foods and dietary components that alter the risk of chronic diseases and elucidation of their mechanisms of action
- Improvement of the methodology for collecting and assessing data on the exposure of humans to foods and dietary constituents that may alter the risk of chronic diseases
- Identification of markers of exposure and early indicators of the risk of various chronic diseases
- Quantification of the adverse and beneficial effects of diet and determination of the optimal ranges of intake of dietary macro- and microconstituents that affect the risk of chronic diseases
- Through intervention studies, assessment of the potential for chronic disease risk reduction
- Application of knowledge about diet and chronic diseases to public health programs
- Expansion of basic research in molecular and cellular nutrition.

In 1987, the FNB established the Committee on Nutritional Status During Pregnancy and Lactation to conduct a detailed assessment of knowledge of maternal nutrition and how recent findings should be applied in perinatal care. The Committee's review of the literature and recommendations are contained in two reports: Nutrition

During Pregnancy: Weight Gain and Nutrient Supplements, and Nutrition During Lactation.

In both reports, the Committee found few well-designed studies and little scientific evidence regarding many important issues. Most of the emphasis in the literature focuses on the needs of the fetus and infant. Relatively little attention has been given to the mother and her needs. Virtually none is given to women later in life or women's nutritional health aside from childbearing functions.

The Committee reviewed the evidence concerning the effects of gestational weight gain on short-term fetal, infant, and maternal health outcomes, as well as maternal factors that could modify those effects. The Committee focused on the links between gestational weight gain and short-term pregnancy outcomes because data relating weight gain to long-term outcomes are relatively scanty, and there is no strong evidence indicating that weight gain affects long-term outcomes directly without first affecting shorter-term outcomes. The Committee considered gestational weight gain as an etiologic determinant, i.e., a cause, of these maternal and child outcomes. The Committee identified many gaps in our knowledge of how maternal health is affected by weight gain during pregnancy.

The Committee found that most studies of human lactation have focused on the quality and quantity of milk produced or on the effects of human milk on infants. Far fewer studies have targeted the effects of lactation on short- or long-term maternal health. The Committee found no studies that evaluated the effects of maternal nutrition on long-term outcomes related to lactation. From a nutritional standpoint, the stress on the mother during lactation is substantial relative to the nutritional needs imposed by pregnancy (a condition that has attracted much more attention). The breastfed infant doubles its weight in the first 4 to 6 months after birth and has additional energy demands beyond the gains in energy stores associated with growth. The metabolic adjustments that redirect nutrient use from maternal needs to milk synthesis and secretion involve nearly every maternal organ system. The Committee identified several high priorities for research.

Nutrition in Medical Education

In 1985, the FNB issued a report entitled *Nutrition Education in U.S. Medical Schools*. The report's major conclusion was that nutrition education programs in U.S. medical schools are largely inadequate to meet the present and future demands of the medical profession. It recommended that medical schools and their accreditation bodies, federal agencies, private foundations, and the scientific community make a concerted effort to upgrade the nutrition curriculum. The committee recognized that extraordinary demands are placed on the medical education system, but, nevertheless, concluded that the recommended curriculum changes could be accomplished with minimal disruption.

Unfortunately, we cannot point to any changes in the teaching of nutrition in medical schools that can be attributed to the report's recommendations. A recently conducted survey by the American Society for Clinical Nutrition documents that there has been an erosion in the number of hours devoted to nutrition topics in medical schools.

Priority Needs in Nutrition Research

The Food and Nutrition Board is currently conducting a study of research opportunities in the nutrition and food sciences. The study is jointly supported by the Department of Agriculture, the Department of Health and Human Services, and the Pew Charitable Trusts. Its objectives are to identify the most promising research opportunities in the nutrition and food sciences, to examine the structure and quality of education and training of researchers, and to make recommendations to facilitate applications of research in clinical and public health policies and programs. We plan to release the report on December 15, 1993 during a symposium to be held in Washington, DC. Because the committee is working to complete its manuscript, I am limited in what I can tell you about its conclusions and recommendations.

The report describes a wide range of needs and opportunities for research in the nutrition and food sciences. The areas were selected on the basis that the research would be likely to enhance the health of individuals and the public, and that it would be intellectually challenging for researchers. The report provides in-depth discussions of research opportunities in four areas: understanding genetic, molecular, cellular, and physiologic processes; enhancing the food supply; understanding food behavior and diet, health, and disease relationships; and improving the diet and health of individuals and populations. The report will conclude with recommendations for improving education and training of researchers. I will plan to send copies of the report to this subcommittee upon its release.

I appreciate the opportunity to appear before this subcommittee and to provide you with the findings of the Food and Nutrition Board about nutrition research and education.

(Attachment follows:)

SUMMARY

IMPROVING AMERICA'S DIET AND HEALTH

FROM RECOMMENDATIONS TO ACTION

A report of the Committee on
Dietary Guidelines Implementation

Food and Nutrition Board
Institute of Medicine

Paul R. Thomas, *Editor*

NATIONAL ACADEMY PRESS
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NOTICE: The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competencies and with regard for appropriate balance. This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

The Institute of Medicine was established in 1970 by the National Academy of Sciences to enlist distinguished members of the appropriate professions in the examination of policy matters pertaining to the health of the public. In this, the Institute acts under both the Academy's 1863 congressional charter responsibility to be an adviser to the federal government and its own initiative in identifying issues of medical care, research, and education. Dr. Samuel O. Thier is president of the Institute of Medicine.

This study was supported by the Henry J. Kaiser Family Foundation through Grant No. 87-4338 and by the National Cancer Institute, National Institutes of Health, U.S. Department of Health and Human Services, through Contract No. N01-CN-85072.

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The image adopted as a logotype by the Institute of Medicine is based on a relief carving from ancient Greece, now held by the Staatlichemuseen in Berlin.

Preface

However, the strategies and actions are sufficiently general to be applied as well to several sets of dietary recommendations developed during the 1980s.

The intended audience for this report is the many people who share some responsibility for implementing dietary recommendations in the United States. Examples of implementors include public- and private-sector policymakers, supermarket managers, restaurant owners, food writers, the entire nutrition community, and deans of schools of higher education.

(The complete report is held in the committee files.)

TESTIMONY OF

RICHARD RIVLIN, M.D.

FOR THE

THE AMERICAN SOCIETY FOR CLINICAL NUTRITION, INC.

Mr. Chairman:

I am Richard Rivlin, M.D. I am the Program Director of the Clinical Nutrition Research Unit at Memorial Sloan Kettering Cancer Center and Professor of Medicine and Chief of the Division of Nutrition at New York Hospital-Cornell Medical Center. I am testifying before you today as President of the American Society of Clinical Nutrition, the major scientific society of physicians and basic science investigators concerned with research and education in nutrition and disease prevention and treatment. Our Society and its members are dedicated to the science of nutrition and to bringing the fruits of that science to the American public in the form of improved nutritional practices for disease prevention, correct dietary management of disease and special systems of nutritional support required during disease and trauma.

Nutrition: A Prevention and Cost Containment Strategy

It is now abundantly clear that many components of our foods and special combinations of foodstuffs are not only required for optimal growth and development, but also are strongly implicated in many of the major causes of disability and death. Healthy people who are well nourished are less likely to have health problems and when well-nourished people become ill, they are likely to get better sooner. Correspondingly, individuals who are malnourished are more likely to become ill, and are less likely to recover.[1] It is crucial therefore that the consuming public be made fully aware of the role of nutrition in their growth and development, health maintenance, and disease prevention and that the scientific community assist in conveying this message. New technologies are also at hand that can enable our nation to produce safer and more nutritious food.

A large portion of the health care bill is devoted to diseases that can be prevented. Nutrition represents a central element in disease prevention. Some members of our population who are least well-served by current health care practices are also most vulnerable to the diseases that now can be modified by nutritional means.

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[1] Jules Hirsch, M.D., testimony before the U.S. House of Representatives Subcommittee on Appropriations for the Department of Labor, Health and Human Services, Education and Related Agencies, March 1993.

Dietary factors are associated with 5 of the leading 10 causes of death: cancer, stroke, diabetes, coronary heart disease, and atherosclerosis. About 25% of the adult population is overweight. Overweight is associated with elevated serum cholesterol levels, elevated blood pressure, diabetes and is an independent risk factor for coronary heart disease. The relationship between obesity and chronic disease in minority populations has been acknowledged by the NIH Report on Minority Health needs.

Obesity, diabetes, hypertension, and osteoporosis, which disproportionately afflict women and minorities, are special targets for research and intervention. The nutrition of the elderly and the need for special nutritional practices during childhood, adolescence and pregnancy require our attention. Carcinoma of the breast, of the prostate and of the colon are now occurring in epidemic proportions in this country. All three malignancies have been shown to be affected by nutritional practices. The wasting that accompanies AIDS as well as many cancers is yet to be understood. Nonetheless, the tools are now at hand to understand and combat these adverse nutritional states which contribute to increase health care costs.

Nutritional problems affect Americans in all age groups. However, the young, the poor, and the elderly are particularly vulnerable. Successful prevention of many of the problems that occur in adults begins in childhood. Although multiple examples illustrate these comments, we will cite only a few.

- Low birth weight infants represent seven percent of all births. Adequate prenatal nutrition and nutritional counseling will reduce the $3 to $7 billion that the United States spends annually for the care of low birth weight infants.

- Chronic iron deficiency in infancy and childhood appears to have a long-term impact on intellectual development. Iron deficiency can be reduced by increasing efforts to persuade mothers to breast feed, and through the promotion of iron-containing infant formulas.

- Up to 27% of American children are obese, and one-third suffer from hypercholesterolemia. Overweight acquired during childhood or adolescence is associated with early mortality and increases the risk for chronic disease.[2] However, few children give any thought to the health effects of foods. Feeding programs such as the school breakfast or school lunch do not address either the fat or sodium content of the fat composition of the meals they serve. Nonetheless, the participation of millions of children in these feeding programs suggests the potential for modification of a significant portion of a child's caloric intake. Obesity and hyperlipidemia add substantially to the annual $150 billion costs of diabetes, cardiovascular disease, and stroke in the United States.

○ A substantial portion of older Americans have dietary intakes or diseases which place them at a high risk of malnutrition. Eighty-five percent of older Americans may have chronic diseases which could be assisted by nutrition interventions. Twenty-five percent of the aged admitted to hospitals are malnourished and their hospital costs may be double those of other elderly.[3]

○ Calcium is essential to the formation of bone and teeth and most of the accumulation of bone mineral occurs by age 20. Deficiency in calcium intake is related to bone disorders and low calcium intake is clearly an important factor in osteoporosis. Hip fractures represent a major source of disability among the elderly. Attention to calcium intake in childhood may significantly improve calcium stores in bone, and reduce the rate of hip fractures. High blood pressure is associated with sodium intake and low sodium intake may prevent blood pressure from increasing with age particularly among high risk populations.

Nutrition is involved in the preservation of health, and implicated as a cause of disease and disability. It also constitutes a treatment for many diseases and disabling conditions. Nutrition should therefore be a major element in any health promotion, disease and disability prevention strategy. A comprehensive nutrition and prevention strategy should involve education for health professionals and the public, nutrition labeling and related information requirements, health insurance coverage of nutrition assessment and patient education in health insurance, and support for basic and clinical science through clinical nutrition research and training centers, and increased numbers of research grants.

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[2] Healthy People 2000, Department of Health and Human Services, Publication Number (PHS) 91-50213, September 1990.

[3] Nutrition Screening, A Consensus Conference sponsored by the Nutrition Screening Initiative, April 8 - 10, 1991, Nutritional Screening Initiative, 2626 Pennsylvania Avenue, N.W., Washington, D.C. 20037.

The Importance of Translating Research Into Practice and Behavior

We believe that one of the most important activities of the federal government is to encourage communication to the public about nutrition and its relevance to maintaining good health. This program should focus on schools and local civic organizations. It should benefit from the research which is yielding so much significant information about the role of nutrients in reducing the number of low birth weight children, the role of folic acid in preventing birth defects of a neurologic nature such as spina bifida, and the role of antioxidants in prevention of heart disease and cancer. This utilization of scientific information could do much to restrain spending for health care and control the federal deficit, a large part of which results from poor health. Communication to the public should emphasize the broad areas of consensus among health scientists about the role of nutrition in the prevention and treatment of many diseases.

In addition, we believe it is time for our nation to take positive steps to assure that physicians are adequately trained in nutrition so they may assist patients in dietary management and similar prevention strategies. Recent surveys have indicated that nutrition was discussed with only 25% of patients seeing primary care physicians. Another survey found that few primary care physicians utilize nutrition in their clinical practice; compare that to the use of pharmaceuticals. This survey also indicated the lack of emphasis on nutrition in medical education in both undergraduate medicine and residency training.[4] We believe that nutrition education for health professionals must be a mandated component of the curriculum for physicians and other health professionals who have primary care responsibilities.

Agriculture Programs

The Agriculture Departments research, education and service programs in nutrition have had a very positive impact on health and need continued support as part of a general nutrition prevention and cost containment strategy. Nutrition research sponsored by the Department of Agriculture consists of investigations of interactions of foods with the genetic potential of consumers. By understanding the mechanisms of food-genome interactions, the government is better able to provide critical information for continued improvement of human diets. The research must also incorporate the broad scope of age and risk factor distributions in the U.S. population. Improvement in diet is essential to the preservation of health.

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[4] Levine, B.S., Wigren, M.M., Chapman, D.C., Kerner, J.F., Bergman, R.L., Rivlin, R.S.: A national survey of attitudes and practices of primary-care physicians relating to nutrition: strategies for enhancing the use of clinical nutrition in medical practice. American Journal of Clinical Nutrition 1993;57:115-9.

Dietary guidelines for the American public are carried forth in publications like "Nutrition and Your Health: Dietary Guidelines for Americans" published by the U.S. Department of Agriculture and the Department of Health and Human Services. These guidelines are based on a thorough evaluation of current scientific evidence which links food intake and the risk of developing several diseases. There is an urgent need for research to provide further substantiation for the biological basis of the Dietary Guidelines. This would lead to future refinements of the Guidelines that will improve dietary practices and health maintenance, and reduce the incidence of obesity, diabetes, hypertension, heart disease, cancer, and a host of other health-related problems.

Summary and Conclusion

There should be expansion of the science base that supports our knowledge of human nutrition. This expansion of the science base is needed to improve our dietary guidance to Americans to achieve better health and to increase our understanding of nutritional interventions to prevent, treat, or cure diseases such as heart diseases, cancer, diabetes, kidney diseases, and AIDS.

There is currently a shortage of academic and research faculty in clinical nutrition. There is an immediate need to expand current training programs to increase the number of physicians and PhDs selecting research and technology careers in clinical nutrition.

There is a need to improve the training of medical students in nutrition in both their preclinical and clinical years so that they have a better understanding of the role of nutrition in clinical nutrition. At this time approximately, only 35% of U.S. medical schools have formal courses in nutrition in their preclinical and clinical years.

There is also a need to improve outreach programs to the public and practicing physicians since they are necessary to disseminate the latest research findings for clinical application and patient education.

The American Society for Clinical Nutrition, Inc.
THE CLINICAL DIVISION OF THE AMERICAN INSTITUTE OF NUTRITION

August 4, 1993

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The Honorable Charles W. Stenholm, Chairman
Subcommittee on Department Operations and
Nutrition
U.S. Agriculture Committee - 1301 LHOB
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman Stenholm:

After completing my testimony before the Subcommittee on Department Operations and Nutrition of the U.S. House of Representatives Agriculture Committee on July 15, 1993, I was asked to submit answers to questions that were handed to me as I left the hearing room. The answers to the questions are as follows:

1a. How can we improve the level of nutrition expertise that physicians receive?

a. Require that all medical schools in the United States include formal courses in basic nutrition and clinical nutrition (including nutrition assessment and nutrition support.) in the pre-clinical and clinical years. These courses should be taught by qualified professionals in basic and clinical nutrition.

b. Increase the numbers of post graduate courses in clinical nutrition for practicing physicians (i.e. meetings and home study programs.

c. Increase the number of residency and fellowship training programs in clinical nutrition.

d. Provide opportunities for medical school faculty training programs in basic and clinical nutrition.

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1b. What should be the top priorities for nutrition research and education programs today?

a. Increase the number of clinical nutrition research training programs to provide well trained professionals to conduct clinical nutrition research and training programs.

b. Increase funding for research in the following areas:

1. nutrient-gene interaction.

2. role of nutrition in the prevention and treatment of chronic diseases (i.e. cancer, heart, kidney, diseases of children, etc.).

3. role of nutrition in improving the health of women and minorities.

4. Obesity - relation to chronic diseases, overweight in childhood and adolescence and its association with early mortality and increased risk for chronic diseases.

2. How effective is interagency cooperation and coordination in setting and achieving nutrition research and education goals and objectives?

There have been several attempts by the Departments of Health and Human Services and the Department of Agriculture to coordinate efforts among federal agencies in developing nutrition research and education objectives. We support these efforts. However, there is need for an effective central planning group to coordinate efforts to support nutrition research and education, nutrition policy, and nutrition interventions because of the well defined role of nutrition in health maintenance and disease prevention. Strong consideration should be given to the establishment of a central organization to coordinate the development of nutrition policy, nutrition education of health professionals and the public, and nutrition research and training.

3. Please describe the role of nutrition in preventative health care.

Many components of our foods and special combinations of foodstuffs are not only required for optimal growth and development but are also strongly implicated in many causes of disability and death. Healthy people who are well-nourished are less likely to have health problems and when the well nourished become ill, they are likely to get better sooner. Correspondingly, individuals who are malnourished are more likely to become ill and are less likely to recover or may have longer periods of convalescence in a health facility.

A significant portion of our national health bill is devoted to diseases that can potentially be prevented. Nutrition represents a central element in disease prevention. There are some members of our population who do not have adequate healthcare and therefore are most vulnerable to the diseases that can now be modified by nutritional means.

4. **What is the single greatest need to improve nutrition research and education in the future?**

   a. Increased funding to expand the science base that supports our knowledge of human nutrition. Recent research findings are providing stronger evidence of the role of nutrition in disease prevention and health maintenance.

   b. Increase the number of academic and research faculty in clinical nutrition at medical schools. At the present time there is a shortage of physicians and other health professionals in clinical nutrition.

   c. Improve the training of medical students in nutrition in both their preclinical and clinical years. This can be accomplished by providing funds for faculty training programs and the support of faculty positions in clinical nutrition in medical schools.

   d. Improve outreach programs to disseminate the latest research findings for clinical application and patient education. Improve consumer education programs to provide information on how good nutrition can improve the quality of life.

I hope the answers to these questions are helpful to you and your committee. If I can be of further assistance, please contact me.

Sincerely yours,
Richard S. Rivlin
Richard S. Rivlin, M.D.
President, American Society for
Clinical Nutrition

RSR/tmc

STATEMENT OF ELLEN SCHUSTER, M.S., R.D., C.H.E.
MINNESOTA STATE EFNEP COORDINATOR
BEFORE THE SUBCOMMITTEE ON DEPT. OPERATIONS AND NUTRITION
COMMITTEE ON AGRICULTURE, U.S. HOUSE OF REPRESENTATIVES
July 15, 1993

Mr. Chairman and Members of the Subcommittee, I am pleased to be here today to discuss nutrition research and EFNEP (the Expanded Food and Nutrition Education Program). I will be focusing on two areas: some specific examples of how nutrition research reaches consumers through the Extension system and the effectiveness of EFNEP.

First, I would like to highlight an example of nutrition research that is currently underway in Minnesota. It deals with two areas that are critically important to "at risk" populations: literacy and low-fat eating. The School of Public Health at the University of Minnesota received a 3 year National Heart, Lung, Blood Institute grant to study the effectiveness of a low-fat nutrition education intervention program aimed at adults with low reading skills. Communities of color and those with a lower socioeconomic status and educational attainment are more likely to be at risk for cardiovascular disease. Thus, EFNEP families serve as an accessible research population. To date, we have been able to assess the reading ability of EFNEP families in 3 counties in Minnesota. Nine percent read at less than a fourth grade reading level; thirty percent read between a fourth and eighth grade reading level. These results have implications for all nutrition educators who work with "at risk" populations since research indicates that printed nutrition education materials focusing on low-fat eating are written at a tenth grade reading level. As a result of this research, we are making a concerted effort in Minnesota to insure that nutrition education, and other materials, are written at an appropriate reading level so that the information is accessible to consumers. Towards this effort, I developed and piloted a brochure on the new USDA Food Pyramid last year and about 26 states are using this piece; over 100,000 copies have been distributed nationwide.

Another exciting project that we have in Minnesota links agriculture to nutrition education programming. Project Grow is a program to encourage self-help on Indian Reservations through utilization of land resources and in the process, promote health and nutrition. We are now expanding community agriculture and education efforts to include health and nutrition on five reservations using the EFNEP model - hiring and training paraprofessionals or peer educators to bring University nutrition research to the reservation population. Health problems such as Type II diabetes and obesity among Native Americans clearly indicates a need for intensive nutrition education programming. In addition, a needs assessment of the five reservations involved in the project found that in addition to diabetes and obesity, other health and nutrition needs are the development of food preparation skills, commodity food usage and pregnant teen nutrition. This project uses a community-based model like EFNEP, thus sensitivity to the culture and its values will be an important part of this project.

EFNEP and Extension effectively collaborate with other agencies to reach "at risk" populations and bring University research to them. Families Take Charge is a Dakota County project that links Extension and the EPSDT program. EPSDT is the Early and Periodic Screening Diagnosis and Treatment program and it provides physical, mental and emotional screening for children and teens whose families are eligible for Medical Assistance. A colleague at the Minnesota Department of Human Services, the agency that administers this program, came to me when she was aware of the opportunity to expand health education and prevention in the EPSDT program. She was aware of EFNEP, was impressed with our training, program delivery and staff and thought that the use of paraprofessionals or peer educators was an effective and cost-saving way to bring health and nutrition education to families. From this initial meeting, Families Take Charge was born. Using the EFNEP model, Extension has hired and trained a health educator/outreach worker and a family mentor. Extension brings the most current nutrition research to "at risk" families - especially information about feeding children and food safety. Using one-to-one home visits, families in crisis are empowered to take responsibility for their lives and the lives of their children. Crisis affects these families in many ways: family mealtimes are forgotten which may lead to hungry and ill-nourished children; food may not be handled safely which may lead to food poisoning, causing illness and more crisis; the parent may not focus on prevention of disease and promotion, thus accelerating poor nutritional habits. Based on anecdotal information from this project which has been operating for a little over a year, the outreach worker has observed that families of color will enroll in this program if personally asked to - an increased enrollment in this health prevention program has been the result. This may mean that fewer families will have to wind up with health conditions that are chronic and costly.

Lastly, I want to address the effectiveness of EFNEP. As you know we are approaching the 25th anniversary of the EFNEP program. In Minnesota we operate 12 EFNEP projects at this time and many have waiting lists. This is astounding because we do not give families health care services, food or money. We give them skills and education. However, families want this program because they are concerned about their families' health and nutrition, and they want to learn how to save money at the grocery store. In our youth EFNEP program we are training teen teachers to teach younger children about nutrition, fitness and food safety in two different projects - Jump In Minnesota and Chances and Choices with Food. We have waiting lists of neighborhood agencies that are interested in implementing our Jump In Minnesota program that teaches inner-city youth nutrition, fitness and leadership skills through fun activities. Chances and Choices with Food is being taught in about half of the counties in Minnesota. This is an example of bringing the most current University research about food safety to the children of our state.

One of EFNEP's goals is the improvement of the diets of program participants. Our families eat more varied diets as a result of their EFNEP education. Program participants eat nutritious foods like milk and fruit and vegetables more often as a result of the information and skill-building in EFNEP.

The EFNEP model of training and hiring community or peer educators works. EFNEP staff work with families in crisis but have the ability to focus on what the family is doing right. This is a powerful strategy when working with families who have been told for so long what they are doing wrong or not doing at all. EFNEP staff also effectively link families to community services and programs they are unaware of or may not have ordinarily accessed. Here are some statements from actual EFNEP participants that speak to the effectiveness of the program:

A single mom states: "I am a single parent who at 21 moved out of my mother's house and didn't know how to cook well enough to feed my family -- and definitely not knowing how I was supposed to try on my limited budget. Barbara and the EFNEP program came into my life and not only gave me the confidence to prepare meals and experiment with new recipes, but showed me how to budget and plan my diet as well. This program was informative and in my situation it was a necessity."

An EFNEP youth participant states: "I'm going to start eating more healthy foods because of what I learned. This class helped me see what food can do to you."

A mom states: "This class has been very valuable to me in many ways. Though I have three children under school age and find it is difficult to get out, I did not want to miss a single class. This class has really made me think about wise purchasing of groceries, meal planning and proper nutrition. In my opinion, this class should be required for anyone receiving food type funding from our government."

Mr. Chairman, this concludes my prepared statement. I will be happy to respond to any questions which you or other members of the subcommittee may have.

TESTIMONY OF
THE SOCIETY FOR NUTRITION EDUCATION
BY
DR. JENNIFER ANDERSON, PRESIDENT

The Society for Nutrition Education (SNE) commends you, Mr. Chairman and members of this subcommittee, for recognizing the importance of reviewing nutrition research and nutrition education and the linkages between these two activities. We have reached a point in the health of our Nation that requires a stronger and more permanent link between food production, nutrition, and public health.

I am Dr. Jennifer Anderson, President of SNE and Associate Professor and Extension Specialist in the Department of Food Science and Human Nutrition at Colorado State University. Today I am representing SNE, a Society of 2,300 nutrition professionals working to link the fields of nutrition, food, and education. I ask that my full testimony be included in the permanent record of this hearing.

Many members of SNE, including myself, are very involved in linking agriculture production to the health of our communities by providing effective nutrition education programs. We are constantly striving to use the findings of nutrition research and to communicate to target audiences appropriate nutrition and health messages through the most effective channels. Historically, USDA has supported basic nutrition research fundamental to growth and development, protection of the health of Americans, and maintenance of the quality of life of elderly persons. Dr. Nicholas and Dr. Rosenberg have explained the current commitment to continuing that type of research. USDA is recognized as a leader and should remain a leader in translating that research into usable information for the public. For the sake of future effective nutrition education, we have identified three priorities. First, we ask your Committee to make a commitment and ensure that this linkage between research and education remains intact. We also request that you support increased visibility for nutrition at USDA, and advocate for adequate funding and support for nutrition education/intervention research.

Our first point is that, **research and nutrition education have been, are, and must remain linked.**

Nutrition education works. Research findings prove that nutrition education consistently changes knowledge, and also can change attitudes and behavior. We need more research to know how to positively affect both attitude and behavior. An example of recent nutrition research that was effectively translated to consumers, concerns the role of antioxidants in chronic disease. This research guided the successful 5-A-Day national campaign. Nutrition education researchers are now evaluating how to use this 5-A-Day message (eat 5 servings of fruit and vegetables a day) in a variety of channels. For example, with the assistance of county extension agents I am investigating how to deliver information to K-6 graders in rural schools and how to most effectively include the school lunch program, local supermarkets, and the media in the effort.

Certainly the role of fat and specific fatty acids in chronic diseases such as coronary heart disease and cancer is well documented. Subsequent messages to eat less fat have been translated to consumers through the new USDA Food Guide Pyramid. This research has also resulted in a myriad of new low-fat and no-fat foods in the supermarket.

The new Food Guide Pyramid, which has been based on recent nutrition research, conveys the tenets of the Dietary Guidelines, namely variation, moderation, and proportionality. The Dietary Guidelines themselves, since their inception 13 years ago, have communicated nutrition and health recommendations reflecting the most recent nutrition research. Nutrition education programs communicate these to consumers.

Numerous trade and non-profit associations (such as IFIC, AHA, NLSMB, and the Dairy Council) have created nutrition education materials. As an example, the Dairy Council has a long history of developing nutrition educational materials and curriculums. A unique aspect of their materials has been the evaluation research component. This exemplifies the process SNE is supporting, namely the coupling of development with strong evaluation and implementation of materials and programs.

A more recent example of a nutrition education activity conducted by the private sector involves collaboration between a professional organization, industry, and the media for mutual benefit. The Society for Nutrition Education recently entered into a partnership with Mcdonald's Corporation and CBS Television. The result was, as many of you know, a series of one minute television programs that aired on CBS Television immediately before a popular Saturday morning cartoon, Ninja Turtles. SNE developed and provided technical expertise for the content of those programs. In addition, SNE nutrition education experts were then involved in the development of print material and brochures that accompanied the media message. Those printed materials, which are disseminated through pediatricians' offices and parent magazines, receive wide exposure. Let me publicly state that not every SNE member was supportive of this partnership. A strength of SNE is our diversity, which has allowed us to analyze issues from multiple perspectives.

The SNE board viewed the McDonalds partnership as an opportunity to provide an accurate, high-quality nutrition education message during Saturday morning cartoons. Regardless of with whom we collaborate with or form partnerships, nutrition educators are committed to maintaining a consistent, research-based message. The information message must be based on sound nutritional science research and must be translated for the public in order to help them with their food choices and nutritional practices. The communication or educational program itself must also be based on nutrition education/communication research. That is, the translation and communication strategies must be research-based as well as the message itself. Relatively more resources have been allocated to research to determine what the message should be. Equal attention needs to be given to research to find ways of enhancing translation and communication of the message.

The CD-ROM medium is also being used to deliver nutrition education to school children through a partnership between the Society for Nutrition Education and another member of the private sector, the Dole Company. The use of computers to build nutrition into the curriculum is expanding rapidly. Other opportunities will be exploited in the future as new and creative delivery techniques for nutrition education are explored. The private sector will benefit by collaborative agreements with professional organizations and the government.

Nutrition education shouldn't be limited to a promotional campaign. When the private sector collaborates with a professional organization such as SNE, the result is nutrition education rather than a promotional campaign. For the desired changes in behavior to occur, nutrition education must be an ongoing, sustainable effort. Nutrition education requires behavior change models grounded in research, not just information transfer. We need to recognize that a few seconds on television is not a nutrition education program or model. Instead, electronic media such as TV must be part of an integrated program in which diverse communication channels support a goal-oriented long term plan for making sustained impact. Curricula, nutrition education programs, and nutrition materials will constantly need review and evaluation. In this capacity, the public sector and professional organizations can provide valuable guidance to the private sector.

The Cooperative Extension Service is an exemplary program which links nutrition research and nutrition education. Extension services provide nutrition education programs that are targeted to local clientele needs and community issues. These programs are research-based and unbiased. The key to its effectiveness is the positioning of Cooperative Extension within the land grant university. The Society for Nutrition Education has many of its members working in Cooperative Extension and in the Expanded Food and Nutrition Education Program.

Today Cooperative Extension responds to current problems by applying research results within our fields of expertise and by gathering information from the entire land grant university system, including the U.S. Department of Agriculture. Cooperative Extension actually takes the university to the people through off-campus offices located in almost every county in every state. Through our extension agents, we help apply scientific knowledge on the job and at home and give all people access to the resources at the land grant university. The agents also carry research and information needs back to the campus. Dr. Usinger has addressed the Cooperative Extension Service in her testimony and Ms. Schuster has spoken on EFNEP.

The Expanded Food and Nutrition Education Program (EFNEP) helps low-income families -- those often most affected by chronic disease and with limited access to health care -- make the most of their scarce resources. The outreach efforts of EFNEP teach program participants to plan for daily food needs and to prepare nutritious, low-cost meals. In addition, education helps participants to select and buy food economically and to effectively use other supplemental programs available to them. Indigenous paraprofessionals employed by EFNEP adapt nutrition education materials and classes to the target ethnic groups. As more families and children live in poverty, their risk of nutritional deficiencies grows and the potential benefits from nutrition education accelerate. Let me illustrate.

In the Colorado Springs area in Colorado, 197 EFNEP graduates learned to save an average of $150.20 on their monthly food bills. As a group, they thus save a monthly total of nearly $30,000. Such savings prompted the following letter from a program participant.

> "... [My husband] definitely enjoys the savings in grocery buying. I remember sharing with you how we are in spending money, but with the EFNEP program we have cut our grocery expense and have bought more and better food products for less money. I have really surprised myself. We really recommend the program to anyone who qualifies for it."

Attached to my testimony is an impact statement from another EFNEP unit in Colorado that illustrates the effectiveness of this program.

With respect to nutrition expertise among medical personnel, SNE believes strongly that it is not the level of nutrition expertise that is the issue, rather the need to recognize when the physician should call upon the services of a qualified nutrition professional. Registered dietitians or other qualified nutrition professionals should be vital members of the health care team. Certainly the value of nutrition services in preventing chronic disease and improving health and saving money is already evident.

In Massachusetts for example, 29 case studies have illustrated positive health outcomes, and over $471,000 has already been saved. Nutrition education for women who developed diabetes during pregnancy saved $5,300 per client in hospital costs and improved their health outcome. The cost of nutrition services was only $210 per client.

As a member of the Coalition for Nutrition Services in Health Care Reform, SNE strongly supports the inclusion of nutrition in the basic benefit package as delineated in the position statement from the Coalition. Nutrition education is not only effective but saves money.

SNE recognizes the need to educate medical personnel and medical students. Nutrition courses are being required in some medical schools, which we applaud. However, the emphasis is on nutritional biochemistry rather than the preventative role of nutrition in chronic disease. Further, present courses do not address how to provide concrete guidance to patients regarding food choices. Therefore the services of nutrition educators is required for these crucial services. My position at Colorado State University, as with many of my colleagues within SNE, involves training and educating our students to be nutrition professionals and thus be an integral part of health care system comprising preventive, therapeutic, and rehabilitative services. Nutrition services comprise an essential, though often under-appreciated, component of health care. That must change, and one way is to better educate the medical personnel regarding the value of nutrition education as a preventive tool and the value of nutrition screening to identify those persons in need of nutrition education and counseling.

Our second priority is to **increase the visibility of nutrition in USDA through improved**

coordination of nutrition at the National, State, and Local levels.

SNE strongly urges USDA to coordinate and raise the visibility of all nutrition activities - education, research, and food assistance. This would provide a strong link between agriculture and health. A further suggestion would be to integrate all food assistance programs to assure that they are delivering a consistent message and capitalizing on each other's success. Standards for personalizing the nutrition education component should be enhanced in such food assistance programs as WIC, Food Stamps, EFNEP and School Lunch. We must link food, nutrition, and health consistently, with agencies at national, state, and local levels working together and not working in isolation.

USDA should face up to credibility issues by changing from a production orientation to one which gives equal emphasis to consumer and public health concerns. Effectively, linking agriculture to health would thus be more likely to occur. One example of a policy change that would enhance health would be a change in commodity reimbursement policy.

While the links among nutrition, health and agriculture have always existed, some recent nutrition education research and programs have brought together health and agriculture interests. An example is the Cooperative Extension program called the Northeast Network, which is a food, agriculture, and health public policy education program. The Northeast Network is designed to help citizens in the Northeast consider the consequences of alternative food policies and make informed decisions about food and agriculture issues that face them as individuals, as members of their communities, and as representatives of various organizations with which they may be affiliated. Developers of this program recognized rightly that problems affecting public health are often inextricably linked to factors affecting agricultural practices. Consumer interests and concerns about the food supply are increasingly relevant to growers, processors, marketers, wholesalers, and retailers. The Northeast Network deals very broadly with the food system and considers as stakeholders those who supply agriculture and aquaculture inputs, those who produce plants and animals, those who process commodities into finished items, and those who transport, market, sell, and serve food products. It assumes that consumers' health is ultimately dependent on the products of the food system.

Another example of coordination between nutrition services are seen in the new USDA Nutrition Education Initiative monies allowing 17 states to explore new strategies in which Cooperation Extension works with WIC clientele to provide nutrition education to hard-to-reach groups. Competitive grants such as this must be recognized as a need so that the research is conducted and then communicated to the public. Nutrition science must form the basis of nutrition education programs for populations at risk due to limited resources as well as other at-risk groups vulnerable to chronic disease.

SNE acknowledges the recent efforts of USDA to work with at-risk populations, but we recommend an expansion of these efforts to include low literate adults, older Americans, limited resource families, ethnic sub-groups, non-English speakers, women's health issues, pregnant teens and the homeless.

An example of nutrition research that I have been involved with examined blue and white collar employees with high levels of blood cholesterol. Results from this study will be used to provide appropriate nutrition education to this at-risk target population. Between 1990 and 1992, Departments of Health in the states of Colorado, Minnesota, Missouri, and Washington collaborated with the Centers for Disease Control and Prevention to conduct a randomized trial comparing the efficacy of two alternative approaches to dietary education following cholesterol screening in worksites. Forty worksites were assigned randomly to one of two alternate educational interventions for those workers found to have cholesterol levels of 200 mg or higher which is the level the NCEP identifies as placing one at risk for heart disease. Cardiovascular risk factors including total cholesterol were measured at baseline as well as 6 and 12 months later. There was little difference between the two intervention groups in cholesterol change at 6 months, but at 12 months those receiving the special intervention showed a 5.3% drop in cholesterol while those receiving the usual intervention showed a drop of only 1.9% (hence a 3.4% reduction attributable to the intervention). We concluded that a behavioral-oriented dietary educational intervention following cholesterol screening can have a meaningful impact on long-term cholesterol levels, and hence on the risk of heart disease. Such research may be published in the Journal of Nutrition Education, which is SNE's vehicle for dissemination of nutrition education research results.

Nutrition education in the future will undoubtedly involve greater collaboration both within the USDA as well as between the USDA and other agencies. Research efforts will be enhanced by greater cooperation. There will need to be greater collaboration both within the federal government and within and between agencies so as to enhance coordination. Using standard bases of information, such as the standards used to educate consumers (namely the RDA's, Dietary Guidelines, and education around the food label), would be an example of a desirable product of a good collaboration. Representatives of the public sector, the universities, and the researchers conducting evaluation studies of nutrition education materials and programs should also collaborate with representatives of federal agencies. Such was the case during the development and evaluation of the USDA Food Guide Pyramid. Increased collaboration between agencies involved in nutrition monitoring, such as that between USDA and CDC, is desirable.

In addition, increased collaboration among NET programs on a statewide basis is also highly desirable. Partnerships, alliances, collaborations, linkages, and cooperation in conducting nutrition science and nutrition education research as well as in developing and evaluating programs and materials will be of increasing importance to nutrition education in the future. University faculty (including professionals in the outreach arms of land grant Universities such as Cooperative Extension personnel), professionals in public health nutrition, and professional organizations will all benefit from closer association with government or industry. Industry and government will seek the expertise of nutrition education researchers and practitioners as they develop their programs. This kind of close cooperation will help research to guide practice and will allow practitioners to inform researchers as to what needs investigation.

Federal agencies such as USDA should modify their rules to ease barriers and facilitate collaboration with groups outside of government. SNE applauds the efforts of FDA and the NEFLE clearing house as an example of interagency and public/private collaboration. However, further coordination of research and material development at FDA still needs to occur. The U.S. Department of Education has never embraced nutrition. Enhancing USDA and U.S. Department of Education collaboration would be highly desirable in order to make nutrition an integral part of education efforts.

Perhaps the time has come to establish a Nutrition Education Council. This should be a clearing house where the public and private sectors can meet to set the agenda for nutrition education, to generate new ideas, and to coordinate new efforts. The Society for Nutrition Education has members with the expertise to provide leadership and vision for such a Council. Along these lines, the current effort to improve nutrition labeling and the coordination of materials at the national level is to be applauded. The Nutrition Labeling Education Program has included the federal government, professional organizations, and various private and public sector organizations. There is a definite need to further such cooperation.

Finally, SNE asks for your support of the following **research priorities in nutrition education research.**

Nutrition education is a process by which we assist people in making healthful food choices by applying knowledge from nutrition science about the relationship between diet and health. It is a deliberate effort to improve the nutritional well-being of the public. Multiple factors affect food choice, all of which must be assessed if effective educational approaches and nutrition messages are to be developed for all segments of the population. Research enhances practice; however practice must inform research and guide its direction.

Adequate funding and support for nutrition education/intervention research is critical. We need to better understand those at risk and other audiences, as well as policies and environments which influence their food choices.

Three types of research are needed for effective nutrition education: 1) basic research on nutrition-related behaviors so that we understand why people behave the way they do; 2) research to develop strategies for implementation in order to change knowledge and behavior practices; and 3) policy research (for example what effect will changes in the food label make on food choices). For effective dietary guidance, there are four dimensions in the process: diet and health research beyond nutrient requirements; dietary guidelines; dietary guidance tools/systems; and consumer food choices. Research is needed at each stage.

A list of priority needs in nutrition education research would be as follows:

1. Fundamental research to understand food decision-making processes and policy-making at the individual, family, community, school, corporate, state, national, and international levels. This should include such areas as:
    - i. current knowledge, attitudes, decision-making processes, food behaviors, and influences on them for at-risk groups as well as the general population.
    - ii. changes in food behavior.
    - iii. similarities and differences among diverse sub-population groups (ethnic and racial groups, income groups, family structure).
    - iv. policy research to
        - a. understand impact of policies on food choices.
        - b. understand decision-making process of policy decision-makers.

2. Study of theory-based interventions through each stage of the food decision-making process, including areas such as:
    - i. formative research for program development.
    - ii. process and outcomes of interventions (formative and summative evaluation).
    - iii. differential effects of interventions on diverse population subgroups.
    - iv. longitudinal research to assess development of food patterns as well as long term impact of interventions.

3. Determination of the economic benefits of nutrition education. Data on the economic value of nutrition education and nutrition services are lacking, and what is published is generally not measuring just the effects of nutrition education. Assessing patterns of eating and measuring behavior changes over time, with special note taken of the influence of family members, will require future attention. An increase in the dissemination and articulation of the findings of nutrition education research will provide valuable input for such research into the next century.

4. Development of improved methods for fundamental food choice research and for studying interventions. These will include methods for studying the decision-making process, food behavior, and changes in behavior over time.

5. Establishment of guidelines for standards in nutrition education, especially in school-based education. These standards should be provided to maximize the health outcomes and the desired changes in knowledge, attitude, and behavior.

The Society for Nutrition Education appreciates the leadership this committee has given to nutrition over the years. With your continued support, the health of Americans can be improved. We must strengthen the link between nutrition research and nutrition education, increase the visibility of nutrition in USDA, and support research which helps all Americans choose food that promotes health.

(Attachment follows:)

Colorado State University Cooperative Extension

Putting Knowledge to Work...

Expanded Food and Nutrition Program Reaches Hard-to-Reach Audiences

Situation

Pueblo County continues to show a large number of unemployed, also a high percentage of families enrolled in public assistance and food stamp programs. It is a continuous challenge for these limited-income families to provide nutritionally adequate diets and to manage their food resources from month to month. In looking at the nutrition program participants, in 1990, 60% were Hispanic, 34% were white and 5% were of black, Indian and Asian descent. The standard ethnic foods eaten by many Pueblo residents are typically high-fat content. A contributor to this is the use of lard or shortening, plus the convenience and ease of frying as a food preparation method. This high-fat diet is a major contributor to obesity, heart disease, diabetes and other related diseases.

Colorado State University Cooperative Extension's Expanded Food and Nutrition Education Program enrolls participants from hard-to-reach, limited income, high-risk audiences in Pueblo County. The EFNEP program provides twelve lessons on general nutrition and health, food safety, budgeting food stamps or food money, reading labels, and other nutrition helps. Para-professionals present the lessons in the homes of program participants, or they meet with small groups in parent centers, churches, or other facilities in the clients' area. This is the most successful educational delivery method for this hard-to-reach audience.

Impacts Achieved

Documented behavior changes at the completion of the twelve-lesson EFNEP curriculum compared to behavior at time of program enrollment relating to diet changed and use of food resources showed the following:

--More than 80% of participants had food for three or more weeks each month.

--Thirty percent of participants had food leftover at the end of the month.

Colorado
State
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Cooperative
Extension

--Increased by 49% (to 70%) the number who read labels regularly.

--Increased by 45% (to 89%) the number who compare cost per serving before buying.

--Increased by 34% (to 74%) the number who use fortified cereals.

--Increased by 28% (to 74%) the number who use low-sugar cereals.

--Increased by 34% (to 81%) the number who thaw food properly to reduce food-borne illness.

--Increased by 48% (to 79%) the number who reduce fat in recipes regularly.

--Increased by 33% (to 79%) the number who reduce the amount of fried foods their family eats.

--Increased by 30% (to 94%) the number who use oil instead of lard shortening.

Participants reported the following comments:

•*"I was really pleased with my nutrition lessons. Because I learned how to feed my family in a healthy manner."*

•*"I enjoyed the program and would recommend this program to anyone who asked."*

•*"...was a very informative program. I'm glad I took the classes and I wish my mom could of taken the class with me."*

•*"I enjoy the program and it is educational. I would like this program to continue."*

•*I just want to thank you for the excellent program you have and let you know that I am a smarter person thanks to...teachings she gave me. Every mother should enroll if the're able. Thank you very much EFNEP and Georgia Hoffman."*

•*I would like to tell you how much I have enjoyed my lessons with Jeania. She kept (helped) me a lot and I learned a lot. I am a foster mother to a 1 1/2 year old boy who is very much under weight. Her help with him was good and I am a diabet (diabetic) and she helped me a lot with my diet."*

--Georgia K. Hoffmann
Pueblo County Office
Pueblo, (719) 546-6000 Ext 3190
Colorado State University
Cooperative Extension

July 15, 1993

U.S. House of Representatives
Committee on Agriculture
Subcommittee on Department Operations and Nutrition

Testimony

of

Stanley H. Schuman, M.D., Dr. P.H.
South Carolina Agromedicine Program
Department of Family Medicine
Medical University of South Carolina
171 Ashley Avenue, Charleston, SC 29425
803-792-2281/ Fax 803-792-4702

My comments today will focus on two areas: 1) the cost effectiveness of the South Carolina Agromedicine Program as a contemporary example of a program which links the agricultural and health communities, and 2) improving the level of nutrition expertise among primary care physicians. My colleague, Dr. Jere Brittain, will discuss the impact of the program on Clemson University and the agricultural community.

Agromedicine is a process which utilizes the resources of the Cooperative Extension Service and local health professionals in delivering university-based agricultural medicine to health practitioners, farm families and consumers. The attached figure depicts our view of agromedicine as interdisciplinary cooperation between the health, agricultural and environmental sciences.

The South Carolina Agromedicine Program (SCAP) was established in 1984 as an interuniversity program between the College of Agricultural Sciences of Clemson University and the College of Medicine of the Medical University of South Carolina. SCAP faculty and staff serve as a medical resource on agricultural health concerns to the Cooperative Extension Service as well as to our state's health care professionals and citizens. Nutrition and food quality is one of many areas of SCAP public service, education and research. Examples of other areas include pesticide health effects, insect transmitted diseases, prevention of skin cancer, noise induced hearing loss and farm family stress.

A great deal of SCAP's educational activities are focused on food and nutrition. Our lecture, "Quality of the American Food Supply," has been one of our most frequently requested lectures. I have presented this lecture about 50 times in the past two years in South Carolina and around the country to a variety of audiences including the public, agricultural professionals, physicians and medical students. The message is simple:

Americans enjoy a safe, abundant and affordable food supply which is

> rigorously monitored by a number of federal and state agencies. A varied diet rich in fruits and vegetables promotes health and prevents disease. As consumers, we can rely on an abundance of natural anticarcinogens in a balanced diet to counteract any man-made chemical residues or naturally occurring molds and toxins. A balanced diet needs to be supplemented with regular exercise and medical care.

These facts have been summarized in a videotape for student and public education. At this time, SCAP is producing two additional videotapes on food quality. One is for physician education while the other is designed for patient viewing in physicians' waiting rooms.

In September 1991, SCAP in cooperation with the South Carolina Academy of Family Physicians, was successful in having the American Academy of Family Physicians, at its annual meeting in Washington, D.C., adopt a resolution endorsing the quality of the American food supply. The resolution closes with "... Be it resolved, that the Academy:

> Acknowledges the improving quality of the American food supply and the major contributions of American agriculture to our patients; this acknowledgement to be communicated to the consuming public through the media and to farm organizations, and
>
> Will continue to follow the most prudent guidelines to protect our patients and promote optimal nutrition."

SCAP has just completed a self-study monograph on food quality that has been distributed to the 92 SCAP consulting physicians in all of the 46 counties of South Carolina. This monograph has been accredited by the American Medical Association and the American Academy of Family Physicians.

The above activities are examples of SCAP initiatives in nutrition and food quality designed to inform the busy practitioner. It is not easy to reach physicians during their undergraduate and post graduate training or during practice. Should more time be allotted for nutrition education in the curriculum of medical students and residents? Definitely, but this is not likely to change in the immediate future. As ongoing medical research clearly establishes the linkage between diet and optimum health and disease prevention, more time for nutrition education will be made available in the curriculum and it will be taught more effectively.

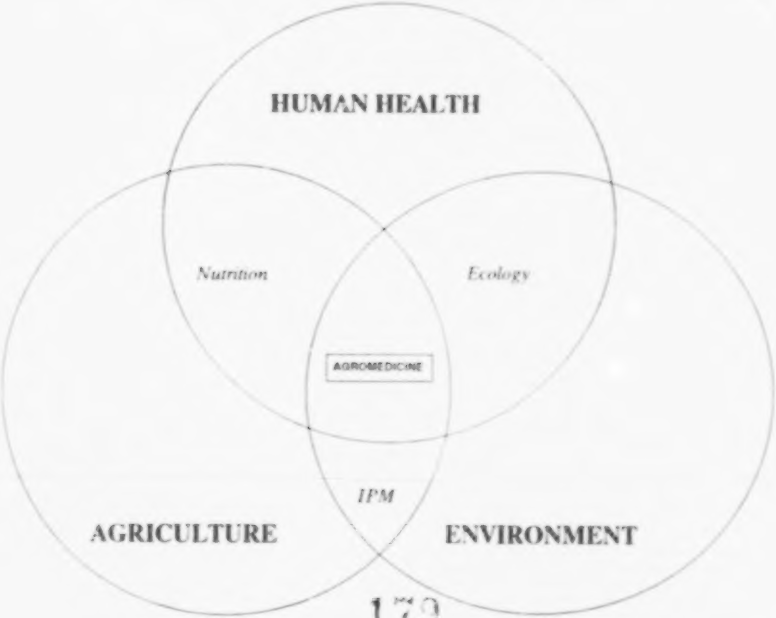
My experience over the past nine years with the South Carolina Agromedicine Program has convinced me that the medical and agricultural communities must work together in nutrition education and research. With fewer dollars available, it makes sense for these two disciplines to work together in nutritional research and education which have such a major impact on health. The busy physician's "access" to up-to-date nutritional information is just as vital as patients' "access" to the physician.

Teamwork will expand the success of the Extension mission and the health care mission.

(Attachment follows:)

THE AGROMEDICINE MODEL

Agromedicine facilitates the integration of agriculture, health care and environmental concerns (IPM = Integrated Pest Management).



HUMAN HEALTH

Nutrition

Ecology

AGROMEDICINE

IPM

AGRICULTURE

ENVIRONMENT

July 15, 1993

U.S. House of Representatives
Committee on Agriculture
Subcommittee on Department Operations and Nutrition

Testimony of
Jere A. Brittain, Ph.D.
IPM and Agromedicine Coordinator
Office of IPM Programs
266 Poole Agricultural Center
Clemson University
Clemson SC 29634-0375
803-656-4460/FAX 803-656-4960

About five years ago, the small, rural community of Prosperity, South Carolina, had no family physician. (Prosperity has received a bit of unusual attention recently because it is located near a town named Clinton). When a young physician named Oscar Lovelace was a boy growing up in nearby Columbia, he frequently visited his grandfather's farm at Prosperity and eventually showed the state champion dairy cow as a 4-H project. He recently said that he returned to Prosperity to establish what is now a thriving family practice because of that 4-H project and that cow.

Three years ago, as part of a Kellogg Foundation funded Agromedicine project, Dr. Lovelace provided space in his office for nutrition specialists and graduate students from Clemson and Winthrop Universities to provide nutrition education and counseling to his patients. Oscar Lovelace is an excellent example of rural family practice physicians who are approaching the health of their patients in a preventive, holistic manner. He recognizes and uses the resources of his County Cooperative Extension system as an integral part of his practice. As a County Agromedicine Advisory Physician, Dr. Lovelace, in turn, is available to the County Extension staff for consultation on community health issues.

During the Alar controversy a few years ago, our Cooperative Extension agents and specialists were besieged with phone calls from concerned parents, physicians and school officials asking, "Is it safe to eat the apples?" It is impossible to estimate the value of having access to Dr. Stanley Schuman, an epidemiologist and pediatrician, to respond to these concerns with calm, professional, science-based advice.

Dr. Schuman has developed a unique educational agenda for physicians as well as farmers in our state and region. The core of his message is that our safe, abundant, affordable food supply should be recognized as the cornerstone of health promotion. Dr. Schuman is currently collaborating with one of my faculty associates in Cooperative Extension, Dr. Rose Davis, in a nutrition education initiative aimed at family practice physicians in our region. He also serves as medical advisor to our statewide Extension committee on food quality and safety chaired by Professor Libby Hoyle.

Dr. Schuman and his associates at the Medical University of South Carolina have collaborated with faculty at Clemson, Winthrop and South Carolina State on a wide range of projects involving rural health. These include farm safety, youth at risk, health screenings, medication compliance, coping skills and life styles relating to stress, heat and sunlight-related illness.

Academic programs at both Clemson and MUSC have been influenced by the Agromedicine program. A rotation in Agromedicine is now available to medical students at MUSC. At Clemson we have attempted to incorporate some elements of physician training methods into our graduate degree in plant health (integrated pest management). Medical and agricultural faculties share a strong interest in teaching interdisciplinary, preventive approaches to pest and disease management. This involves the use of pharmaceuticals or pesticides in a minimal way, and in the context of the general health of the whole-family or whole-farm as well as the community.

The Cooperative Extension system and indeed the entire Landgrant university system is in the midst of examining and redefining its role at the national, state, and local levels. Consumers and environmental organizations have established themselves as active stake holders in the food production system. Agricultural production and processing groups have begun to acknowledge that consumers have a legitimate interest in how their food is produced and in land and water stewardship.

This process of consensus seeking will be well served by close collaboration between Landgrant and medical universities. As we have traveled together to every corner of South Carolina, Dr. Schuman and I have often shared this thought: farmers and physicians are actually in the same business. Both occupations are about human health.

Attached as Exhibits 1 and 2 are comments from two of my colleagues outlining accomplishments of the EFNEP program in South Carolina and summarizing other extension initiatives in nutrition.

(Attachments follow:)

Exhibit 1

EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM
(EFNEP)
SOUTH CAROLINA

KATHERINE L. SHARMAN, PH. D., R.D.
STATE EFNEP COORDINATOR

The Expanded Food and Nutrition Education Program (EFNEP) is a federally funded program administered in South Carolina by the Clemson University Extension Service. Its primary purpose is to improve diets of limited resource families, thus enabling them to enjoy better health, improved stamina, and increased productivity.

EFNEP education is tailored to the needs, interests, financial resources, age, ethnic backgrounds, and learning capabilities of participants. EFNEP includes programming for two primary audiences - young families with children and youth age five to nineteen.

EFNEP's objectives are:
1) to improve diets and nutritional welfare for the total family.
2) to increase knowledge of the essentials of human nutrition.
3) to increase the ability to select and buy food that satisfies nutritional needs.
4) to improve practices in food production, storage, preparation, safety, and sanitation.
5) to increase ability to manage food budgets and related resources such as food stamps.

During FY 1992, approximately 4,000 homemakers were enrolled in the Adult Phase of the Expanded Food and Nutrition Education Program (EFNEP). Food and nutrition lessons were tailored to the individual needs of all homemakers and their families through the use of computerized analysis of Family Records. In group settings, the most frequently occurring nutritional needs of the group members were addressed. All homemakers acquired some knowledge and skills needed to plan, procure and prepare nutritious foods for the family.

EFNEP county and state staff continued to receive assistance from other agencies in identifying potential homemakers and in working with homemakers in groups. Agencies who provided referrals or cooperated with EFNEP in forming groups were as follows: Department of Social Services, WIC, Food Stamp Program, County Mental Health Agencies, Head Start, Interfaith Community Services, and various anti-hunger agencies.

During FY 1992, over 60% of EFNEP families participated in the food stamp program, 40 in WIC, and 50% had children who participated in the National Child Nutrition Program. All paraprofessionals, EFNEP Supervising home economists and EFNEP Area Agents participated in training on the services of other agencies and how to effectively make referrals.

All new homemakers were asked if they received food stamps or WIC, and if not, were given information about these programs. There were over 5,000 referrals from EFNEP to other programs. All the major agencies, including the Department of Social Services and the Department of Health and Environmental Control were visited by the Supervising Home Economists and the 57 paraprofessionals in 38 counties. Contact was made by the EFNEP Coordinator with the state level Health and Human Services Finance Commission, Department of Social Services and the WIC Program to establish or improve referral systems.

Officials of these agencies were informed about EFNEP and were urged to make referrals to EFNEP. Various referral and feedback procedures were discussed. As a result, over 1,500 referrals were made to EFNEP from other agencies.

Cooperation was obtained on referral of potential clients to EFNEP from the following agencies: Food Stamp Program, WIC Program, Mental Health Agencies, Soup Kitchens, Food Pantries, Head Start Program, Salvation Army, and Department of Social Services, and Interfaith Community Services.

During FY 1992, 4-H EFNEP operated in 32 counties involving 47 paraprofessionals. Approximately 5,000 youth were enrolled. These youth learned knowledge and skills to enable them to make wise food selections and to prepare simple meals and snacks. Approximately 500 volunteers devoted over 6,000 hours to the youth program. Ninety-five percent of youth were involved in a comprehensive series of 6 to 16 lessons.

It is estimated that 95% of enrolled youth learned food and nutrition skills and knowledge that will significantly improve their food choices. While participating in 4-H EFNEP, all youth were informed of regular 4-H activities and urged to participate and to join a 4-H club after graduation from EFNEP. Approximately 90% EFNEP youth participated in at least one regular 4-H activity during the year or continued as a 4-H member after graduation from EFNEP.

Exhibit 2
Comments of Professor Rose Davis,
Extension Nutrition Specialist,
Clemson University

Question 1. Examples of recent research that has been well communicated to consumers.

The issue of fat and its relationship to heart disease has been effectively communicated to consumers. Recent surveys have shown that American adults and youth know that too much fat is harmful to their health. However, they are having difficulty in translating this to their food selections.

Question 2. Current research for "at risk" groups and methods of communication to these groups.

Research continues on the harmful effects of too much fat in our diets. Educators are finally realizing that you must go where the people are to deliver nutrition information. This has lead to an increased emphasis on teaching people at the worksite and in churches. We have two programs which do this: Nutrition Education for the Congregation with the primary target audience being the African-American churches; and Nutrition At Work. Both of these programs were developed in cooperation with the Center for Health Promotion at the SC Department of Health and Environmental Control.

Question 5. Nutrition Education examples from the private sector.

The American Cancer Society has a series of lessons called "Changing the Course"; this is for School Food Service Programs and educates the employees in better meal service in the public schools. It also has a component for the classroom that involves the School Food Service Supervisor working with the classroom teacher and students.

The American Heart Association has several programs. One is "Heart At Work" which reaches people at the worksite; they also have a supermarket program that assists consumers with shopping and a restaurant program that evaluates restaurant menus for fat and sodium.

All of these activities are very successful; they are even more effective when several groups, i.e., Extension Service, Health Department, are involved with them in delivering the information.

Question 6. Expertise in medical profession.

Personal opinion - no "hard data"; I think that the medical profession is severely lacking in nutrition expertise. However, let me quickly say that I do not believe that it is the MD's primary responsibility to counsel people on nutrition. S/he is trained to provide medical expertise and the nutrition counseling should be done by a trained professional, namely the registered dietitian. More resources should go to training and educating more registered dietitians to provide these services in hospitals and physicians offices. Third party payment (insurance) should be available for nutrition counseling.

Question 7. Interagency coordination of nutrition education activities.

We have no problem with this in SC. DHEC, DSS, School Food Services and Extension all cooperate in many ways to meet the needs of SC citizens. We know that one agency cannot do it all and in our small, rural, poor state, we must cooperate.

Question 8. Priority needs in nutrition education and research.

Research:
Economic value of preventing disease through improved nutrition; put a $ value on our educational efforts.
Study methodology for reaching diverse groups, i.e., effective methods for reaching African-Americans, Hispanics, etc.

Education:
Teaching consumers to evaluate nutrition information received through the media and other outlets
New nutrition labels

EHP 757
Rev. March 1993

CLEMSON UNIVERSITY
Expanded Food & Nutrition Education Program

Extension

WHAT IS EFNEP?

The Expanded Food and Nutrition Education Program (EFNEP) is an integral part of the Cooperative Extension System Home Economics and 4-H Youth Programs. EFNEP teaches limited-resource audiences how to improve their dietary practices and become more effective managers of available food resources.

WHOM DOES IT TARGET?

EFNEP includes programming to reach two primary audiences: Adult and Youth.

Adult: Limited-resource homemakers/individuals living in either rural or urban areas who are responsible for planning and preparing the family's food, with emphasis on households with young children.

Youth: Limited-resource 4-H youth (ages 9-19 years) living in rural or urban areas.

The assurance that all eligible persons shall have equal access to the benefits of the program and facilities without regard to race, color, national origin, sex, religion, age, or handicap is an important objective of the Extension System. This objective permeates the efforts of the Expanded Food and Nutrition Education Program.

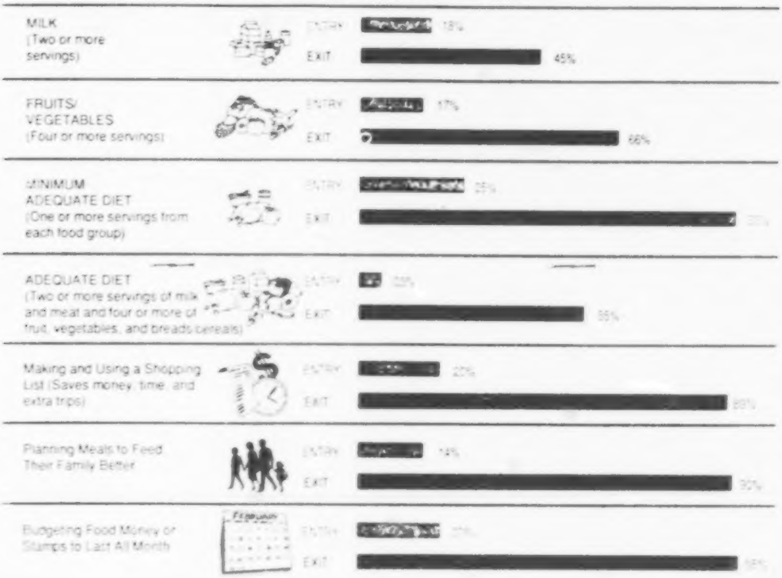
OBJECTIVES OF THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM:

To help limited-resource families and youth to acquire the knowledge, skills, attitudes, and changed behavior necessary to improve their diets in normal nutrition.

EFNEP can be expected to result in:

1. improved diets and health for the total family
2. increased knowledge of the essentials of nutrition
3. increased ability to select and buy food that satisfies nutritional needs
4. increased ability to manage resources that relate to food, including federal assistance programs such as food stamps
5. improved practices in food purchase, storage, safety, and sanitation

PERCENT OF IMPROVEMENT IN DIETARY INTAKE AND SELECTED FOOD BEHAVIOR AFTER PARTICIPATION IN EFNEP



HOW DOES EFNEP WORK?

ADULT:

Homemakers are taught either individually or in small groups by EFNEP Program Assistants who have received training in nutrition education by an Extension Home Economist. The Program Assistants teach homemakers basic nutrition, food buying skills, menu planning, and management of available resources including food stamps.

YOUTH:

Youth of 4-H age (9-19) are taught in small groups by volunteer leaders who have received training from Extension personnel in nutrition and how to work with youth. The 4-H EFNEP groups work through a series of lessons focused on nutrition knowledge, food preparation skills, and food choices. There is opportunity for youth and leaders to participate in other 4-H opportunities.

WHO IS EFNEP HELPING TODAY?

- 85% have a family income of less than $8,868 per year
- 53% receive Food Stamps
- 22% of the Program homemakers are White, 77% are Black, 1% Hispanic, and less than 1% American Indian and Asian
- 72% live in rural areas, 28% in urban areas

WHO HAS EFNEP HELPED SINCE 1969?

- Over 70,000 homemakers have benefited from the program
- Over 87,000 youth have benefited from the program
- Over 15,000 volunteers have worked with both the adult and 4-H program

WHO TO CONTACT?

If you are interested in finding out more about EFNEP please contact the county Cooperative Extension office number listed on the right.

Prepared by Katherine L. Sharman, Ph.D., R.D., Extension Program Coordinator, Expanded Food and Nutrition Education Program

County Extension Offices

Abbeville	459-4106	Greenwood	229-6681
Aiken	649-6671	Hampton	943-3621
Allendale	584-4207	Horry	248-2267
Anderson	226-1581	Jasper	726-3470
Bamberg	245-2661	Kershaw	432-9071
Barnwell	259-7141	Lancaster	283-3302
Beaufort	525-7118	Laurens	984-2514
Berkeley	761-8499	Lee	484-5416
Calhoun	874-2354	Lexington	359-4265
Charleston	722-5940	McCormick	465-2112
Cherokee	489-3141	Marion	423-8285
Chester	385-6181	Marlboro	479-6851
Chesterfield	623-2134	Newberry	276-1091
Clarendon	435-8429	Oconee	638-5889
Colleton	549-2596	Orangeburg	534-6280
Darlington	393-0484	Pickens	868-2810
Dillon	774-8218	Richland	256-1678
Dorchester	563-3441	Saluda	445-8117
Edgefield	637-3161	Spartanburg	582-6779
Fairfield	635-4722	Sumter	773-5561
Florence	661-4800	Union	427-6259
Georgetown	546-4481	Williamsburg	354-6106
Greenville	232-4431	York	684-9919

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Furtherance of Cooperative Extension Work in Agriculture and Home Economics,
Acts of May 8 and June 30, 1914

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WRITTEN TESTIMONY BEFORE
THE U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON AGRICULTURE
SUBCOMMITTEE ON DEPARTMENT OPERATIONS AND NUTRITION

PREPARED BY
DAVID A. McCARRON, M.D.
PROFESSOR OF MEDICINE
THE OREGON HEALTH SCIENCES UNIVERSITY

JULY 15, 1993

Members of the House, Staff and Colleagues, I want to express my appreciation for being asked to testify before the Committee on Agriculture's Subcommittee on Department Operations and Nutrition, as it considers the linkage between nutrition research and nutrition education in the United States. I appear here today as a health care professional whose formal training was not in the nutritional sciences, but whose career path has led to 15 years of exploration of the link between the food we eat and one of the most common medical disorders in adults in this country, high blood pressure, or hypertension. I currently direct one of the National Institutes of Digestive, Diabetes and Kidney Diseases' Clinical Nutrition Research Units (CNRU). The CNRU at Oregon is the only one of the eight NIH CNRUs which has hypertension as one of its two primary foci. The other focus is lipid disorders in adults. I also currently chair the Council on Hypertension for the National Kidney Foundation. The basic question you are considering today, I consider of utmost importance to this country. At a time in our nation's history when we are struggling with harnessing the costs of the most successful health research and health care system in the world, it would appear that the critical contribution of our diet to our nation's health may be discounted as an important factor in the equation that we all wish to see solved. That is, how to deliver to our citizens optimal health care that is affordable to our society.

In a day and age when the advances of molecular biology and its attendant exploration of the genetic basis for the diseases, common and rare, that afflict humans, have the attention of the media, it would be easy to overlook the power of proper diet in our lives to deliver the insurance that we all seek against the ravages of preventable diseases. In contrast to these "sophisticated scientific endeavors" that dominate much of our interest in the biomedical field today, I often refer to nutrition research as the exploration of the low-tech solutions we can "live with." **If there is one thought I wish to leave you with today, it is that this country must get serious in acknowledging the impact that nutrition has on our lives.**

There is general agreement that public health strategies that will prevent common diseases that strike us prematurely and at tremendous costs to human potential and society's resources, must be the lynch pin of a national effort to reduce the cost of health care. We have reason to be optimistic that such public health measures could be successful. We have experience as a society and a species. We live longer today than our forefathers because of public health measures, the eradication of many communicable diseases. As a society we talk about other reasons for why we live longer - sophisticated drug development, new life-support technologies, etc, but those advances have not had the impact that smallpox or tetanus vaccinations have had, or general hygienic efforts, such as sewage treatment of water purification, have had. We need only look at those countries where these types of public health advances still have not been reached to know what their value is in improving life expectancy. Or, we can simply look at what AIDS is doing to this country, to be reminded of the importance of public health preventive measures to extending the length and quality of life.

I would like to pose to this Committee the thesis, that the topic of discussion today, nutrition, is the other factor, after infectious diseases, that holds the greatest potential to reduce suffering from common chronic diseases. That potential will only be realized if it is made a priority by society and the individuals that govern us, such as yourselves. If one simply looks at the major medical causes of premature morbidity and mortality in the United States, they all have a strong tie to diet. Beginning with pregnancy and low birth-weight infants, moving through childhood/adolescent eating disorders to adult disorders such as diabetes, cancer and cardiovascular disease, and finally, osteoporosis in our elderly, we already have the insights to know that proper diet could be a prime component in their prevention.

Let me provide some real examples of the potential we are talking about drawn from areas of clinical medicine I am familiar with from my research. The dietary intake of dairy products during the last three months of pregnancy predicts an infant's blood pressure at six months and two years after birth. We know that the lower an infant's blood pressure at birth, the lower her or his blood pressure will be throughout life, which translates into a lower overall heart disease risk for life. The impact of milk on an infant's blood has been linked to the mineral rich content (calcium, potassium and magnesium) of that food source. This effect of milk consumption on early childhood blood pressure development has also been demonstrated in three- to five-year-old youngsters, as reported by the Framingham Family study last year. The investigators from Boston called the beneficial impact of milk on blood pressure the strongest blood pressure protective factor ever identified in children.

Along this same theme, scientists from a multi-center study in the Southeastern United States reported that differences in milk and dairy product intake between Caucasian and African-American teenage girls accounted for all of the racial differences in blood pressure. Again, this impact was linked to the mineral content of milk. Even though these white teenage girls reported more milk intake, a perceived source of fat and extra calories, they were thinner than their African American peers. This association of dairy product intake with leanness in America had originally been reported by my laboratory in our analysis of the U.S. Government database HANES I, which we published in *SCIENCE* in 1984. It was subsequently documented by other researchers in Europe. Thus, this series of findings offers a simple, nutritional public health strategy to keep blood pressure down early in childhood and adolescence, which means setting up these youngsters for a healthier adult life.

Furthermore, this series of findings provides a possible explanation for why racial differences in blood pressure exist in this country, a factor that we know strongly contributes to the greatly increased risk of heart disease, stroke, and kidney failure in our African-American peers. In fact, scientists at Wayne State University have reported that two containers of yogurt per day for several months will reverse hypertension, improve diabetic control, and regress hypertrophy (thickness of the heart muscle) in black, diabetic hypertensives. I do not have to calculate what the economic and quality of life impact is. It equates to billions of dollars saved to our health care system and greater productivity and contribution to our society of a high risk group that has suffered throughout the history of this country from premature morbidity and mortality from these common disorders.

The importance of these findings are being further explored by investigators in Southern California in an NIH-supported study. In our program at Oregon, we have recently been awarded the Coordinating Center for a multi-center study of the impact of diet on blood pressure in adult Americans. The study is structured to include at least 50% African-Americans when it is concluded in 1996-97. Think about the implications, though, of what I have just stated. The National Institutes of Health in 1993 has set out to test, for the first time ever, the benefits of a balanced diet on blood pressure control in adult Americans. I am sure most members of Congress, as most consumess would assume that this theory had been properly tested long ago, but it has not!

The thread of this clinical nutrition saga extends well beyond the examples presented above. Studies by our program at Oregon have demonstrated that approximately 40% of individuals with mild hypertension will achieve good blood pressure control by simply increasing their calcium intake by 1000 mg/day. We have recently completed a comparison of using a dietary source of calcium and compared it to calcium supplements. Both sources of calcium lowered blood pressure to about the same degree, but as we will report later this fall in *The American Journal of Clinical Nutrition*, the subjects who were treated by diet corrected not only a deficit in their calcium intake, but also deficits in their potassium and magnesium intake as well. Of greater significance, even though the subjects who used a dietary rather supplement source, more than doubled their dairy product consumption, they experienced no adverse effects in terms of weight gain or blood lipid levels. "Common wisdom," as expressed by the average consumer, would have predicted just the opposite. The NIH Trial of dietary patterns and blood pressure control, noted above, will test the benefits of diet in treating hypertension further.

Another high risk population currently being tested for blood pressure benefits of maintaining an adequate calcium intake, are young, first time pregnant mothers of lower economic status. These young women are at substantially greater risk of developing hypertension during their first pregnancy. The hypertension, while frequently of only limited consequences to the mother, is often associated with premature low birth weight infants. This clinical trial is testing the impact of 2000 mg of calcium as opposed to the current recommendation of 1200 mg during pregnancy. Based upon the NIH's estimates and the preliminary studies in this area by investigators from Johns Hopkins, our program, and investigators from abroad, it is anticipated that this simple intervention, costing less than 13 cents per day, will cut the incidence of premature, low birthweight infants by 40-50%. Published data from Quebec, Canada has already reported that women at risk who maintain a calcium-rich diet from dairy products experience a 40% reduction in their risk of hypertension and its complications during pregnancy.

With each low birth-weight, premature infant costing an average of $250,000 the first year of life, according to the March of Dimes, the impact of this potential public health strategy could mean as much as $4 to $8 billion saved in Federal health care costs alone within the first eighteen months of initiating it. The savings in terms of human potential can not be estimated.

The implication of this body of research I have touched upon concerning blood pressure benefitting calcium intake was recently acknowledged by the Joint National Commission on the Detection, Evaluation and Treatment of Hypertension from the National Heart Lung and Blood Institute at NIH. This report added as a preventive and treatment measure the recommendation that subjects with hypertension, or at risk of developing it (that's all of us), maintain a life-long intake of dietary potassium, calcium and magnesium. This means milk and dairy products, which supplies 70-75% of our calcium, 30-35% of our potassium and 20-25% of our magnesium exposure on a daily basis. In fact our work and that of many other laboratories worldwide, over the past decade, has unequivocally demonstrated that the benefits of dietary calcium are highly dependent on the simultaneous ingestion of these other two electrolytes, and also salt.

This latter fact, that the intake of these three electrolytes appear to protect against salt's perceived adverse effects on blood pressure, brings me to issue of the discordance between nutrition research and nutrition education. If one simply asked consumers on the street, or in this Congressional Hearing, what was the dietary factor most strongly linked to an increased risk of hypertension, they would most likely say "salt." And yet, within my peer group of hypertension researchers, it is well-recognized that the link between high salt and high blood pressure is very tenuous. In fact the advances of the past ten years have led many of us to appreciate the importance of dietary deficiencies and not excesses in the genesis of hypertension.

This fact has led many of us to also come to grips with the obvious, but long overlooked principle, that it is not single nutrients which affect our health to the good or the bad; it is the food. In this case, dairy products are the foods most frequently identified as being the source of the calcium responsible for lowering blood pressure. We recognize that it is also the potassium and magnesium that comes with calcium in the food source that accounts for this protective effect. Not only does the mineral content of milk appear to be essential, but also the fats in dairy products have also been reported by our group to contribute to the anti-hypertensive effect of milk and dairy products. Think of the confusion for the consumer. Federal public policy and nutrition education efforts have emphasized the putative adverse cardiovascular consequences of dairy products because of their fat content and have warned repeatedly about the risk of dietary salt.

What are they to believe? For now it will be these "wives' tales of the past," and not the facts which have emerged from nutrition research. What are the barriers to proper education of the populace? I would argue they are multiple and formidable. I would also argue they are not unique to the area of research I have chosen to highlight, dietary factors influencing blood pressure control. **The barriers include forging public policy before the research to support is ever executed.** There appears to be an uncontrollable urge on the part of individuals involved in setting public health policy in the area of nutrition to make pronouncements before the proper data is available to support them. It is as though the public must have an answer and there must be good nutrients and bad nutrients.

A corollary to this first barrier is the **lack of funds to support the nutrition** research that needs to be undertaken to properly document the relationships that exist between our nutritional patterns and diseases. Setting policy in advance of science, creates perhaps the biggest barrier - what do you tell the people, if after you have set the policy, the scientific studies indicate that the policy is misguided or simply wrong? I would propose to the Subcommittee, that we have such a conflict with the long ago, signed-off on position that reduction of dietary salt was the nutritional goal for the prevention and treatment of hypertension. That is not to mention the conflict set in motion, if not only that dairy products do turn out to be an important contributor to reducing hypertensive heart disease, but also that butterfat actually possesses blood pressure lowering actions, as the preliminary work already indicates it does. I could envision some very confused consumers.

Perhaps an equally important barrier is the way in which most consumers receive their nutrition information. It rarely comes from the health care professional, since most physicians possess only a rudimentary understanding of the nutritional sciences as they apply to the practice of medicine. The origins of this deficit in physician education was addressed several years ago by the National Academy of Sciences in their report on the status of the nutritional sciences in medical school education. It was not a glowing report!

Unfortunately, much of the nutrition information our consumers are exposed to comes from the marketing efforts of the food industry. By the very nature of the corporate sector, using nutrition information as a marketing tool means segmenting foods by their specific nutrient uniqueness that sets one product apart from another. This does two things: first, its sets people thinking about single nutrients and not foods; second, it introduces the concept of good foods and bad foods based upon a single nutrient characteristic of a food product. In essence, there is little or nothing to be gained by talking about food and the importance of the total diet, as the marketing benefits hinge upon the specific qualities of one product versus another.

That is where the agricultural sector has difficulty competing. For many agricultural producers, the nutritional qualities their commodities bring to the marketplace are not communicated in corporate reliance on the benefits of the specific nutritional aspects of the food product produced. I am aware that one major food corporation has taken steps recently to convey, eventually, a total diet message for several high risk populations. The impact and success on consumers' understanding of that unique marketing approach remains to be determined.

The agricultural sector's response, too frequently in the past, has been to compete with the food corporations on the same basis, flashy marketing ploys that ignore the overall nutritional benefits that the commodity actually possesses. More than the private corporations involved in food production, the various farming groups are much more dependent on the communication of the total diet message. By that, I mean that they have a "generic" product to promote whether it be corn or fluid milk, as examples. There is no specific food product that the consumer can focus on. As a consequence, the verification of the health benefits of a specific commodity through the scientific process and its communication to the consumer must rest on this "generic" approach. The commodity groups of the agricultural sector have been reluctant, in my view, to undertake what is required to educate, effectively, the consumer about how their commodities contribute to a "healthy diet."

In supporting that conclusion, I have to rely, once again, on our experience at Oregon. Obviously, our focus on the health benefits of dietary calcium in the prevention of hypertensive heart disease has placed us in parallel with the long-term interests of the dairy industry. In the mid-1980s, several leaders of this commodity group recognized the wisdom of the approach (I have suggested above) is needed. They consolidated nutrition research funding around the nutritional benefits concentrated in their commodity, i.e. calcium and other electrolytes. They developed a multi-dimensional research strategy centered on the concepts emerging from our laboratory, but utilizing also the expertise of investigators from a variety of campuses throughout the country. That targeted approach, without doubt, catalyzed the development of the database I have alluded to above, regarding the life-long, beneficial impact of milk and dairy product consumption on a variety of cardiac risk factors for several high risk populations.

The approach initiated in 1984 required the cooperation of both regional and national dairy organizations including the Wisconsin Milk Marketing Board, the National Dairy Council, the California Milk Advisory Board, as well as many other regional dairy promotion units. Soon after its inception in 1985, the National Dairy Board assumed much of the funding and coordination responsibility for this national research effort. While I am not without bias, there is little question that this effort, in its structure, financial commitment and outcome was both time and cost effective. Using an approach similar to that developed by the United States Department of Agriculture through its highly successful Human Nutrition Research Centers funded by the Agricultural Research Services, the dairy industry provided a prototype for other agricultural groups to replicate.

How do I measure the success of that program? It is evident that the multiple NIH trials I have mentioned would not have been proposed or funded were it not for this targeted effort and the preliminary data it generated. Personally, the awarding to my research group of one of the NIH's eight Clinical Nutrition Research Units in 1989 was the peer acknowledgement of our success in developing a compelling case to further explore the nutritional value of the minerals in milk. That event linked NIH nutrition funding based upon a "disease model" with industry resources focusing on a "health promotion and prevention concept."

Precisely, the issues that I suspect underlie this Committee's interest in holding today's hearing were being addressed by this coordinated research effort. Its funding by the dairy industry, through the appropriate mechanism established by Congress and the National Dairy Board, was the driving force behind the development of a national nutrition research effort directly tied to defining the health benefits of their commodity. It had immediate application in terms of nutrition education for consumers and health professionals. The rather substantial value this effort delivered to the setting of public health policy are obvious from the examples noted above.

To address the latter two points, through the CNRU at Oregon, a Physician's Education Program on the Non-Pharmacologic Management of Hypertension was delivered with sponsorship of the National Kidney Foundation with funding from the National Dairy Board. That one-day program has visited 23 cities, been attended by over 5,000 health professionals and was cited several years ago by the WHO's Hypertension League as the best source for practicing physicians on how to prevent and treat hypertension by dietary means. We also delivered a quarterly review entitled *Nutrition and Blood Pressure Reviews*, also sponsored by the NKF. In terms of affecting public policy, the incorporation of the recommendation to maintain life-long potassium, calcium, and magnesium intake by the panel from the National Heart, Lung and Blood Institute is compelling documentation. I have to emphasize that without forwarding thinking leadership coming out of Wisconsin, California, Washington State, and United Dairy Industries Association in Chicago, the umbrella group for National Dairy Council in 1983-84, none of this would have been possible.

As an indication of just how fragile these commitments are, however, within weeks of the NIH decision to award one of their CNRU's to the National Dairy Board's Institute at Oregon, we were notified by Dairy Board staff that the substantial and critical funding provided to us by the Board would be phased out over an 18-month period. Citing data they claimed indicated that health professionals and consumers would never be interested in nutrition information linking milk and dairy product consumption with a reduction in heart disease risk, the staff of the Dairy Board began a process that has largely dismantled a national network of nutrition researchers centered around, but hardly limited to, our program at Oregon.

However, the responses the Board got from its surveys are not surprising as the one component of this entire eight-year effort that was never properly developed was an aggressive education program to alert the consumer and the health care worker as to the evolution of the information flowing out of this program. **It is not surprising that given decades of messages to the contrary, when the uninformed were asked what their response would be if this data were true, they gave an uninformed response.** It is evident to all of us directly involved, that the millions of dollars invested by the Board would not yield their full return unless a serious effort was also made by the Board to tie the outcome of this nutrition research program to the day-to-day marketing strategy of the dairy industry. Even when the NIH issued their new prevention recommendations last October regarding the need to maintain the electrolyte intake pattern found in milk, only a minimal and under-funded effort was made to communicate this to the public. When alerted about the NIH Calcium Intake and Pregnancy Trial, discussed above, no interest was expressed to establish a link with the program staff at NIH who were directing the project.

So, without follow through to convey the new nutrition information and further expand the research effort by leveraging the industry's commitment off of appropriate Federal initiatives, such as the various NIH studies I have cited and the CNRU at Oregon, the outcome is predictable. Research is successful in dramatically expanding our understanding of the health benefits of a major food group, but the consumer is left largely uninformed. I can assure this Committee that if a multi-national pharmaceutical corporation had the permanent patent on a factor that: 1) could potentially eliminate the need for 40% of their competitors' antihypertensive drug prescriptions; 2) offers significant protection might be afforded against hypertensive disorders of pregnancy and the attendant reduction in low birth-weight infants; 3) might be the answer to preventing salt's adverse effects on blood pressure; 4) had significant benefits for reducing the excessive risk of heart disease, stroke, and kidney failure that African-Americans face, I do not have to suggest what the corporate response would be.

In fact, our own experience with another consumer education program we share with Dr. Rivlin's CNRU at Cornell, suggests that consumers do want access to current nutrition information. Dr. Rivlin and his colleagues at Cornell developed three years ago a Calcium Information Center funded by SmithKline Beecham. The 800 # that is the center piece of that consumer education program, which we administer out of the CNRU in Portland, will be used by over 35,000 consumers and health care professionals this year alone. The CIC has also favorably impacted upon the execution of the NIH pregnancy trial on calcium, by directing private funding into the NIH program office involved. The quality of the NIH study and the data generated has been consequently enhanced by the additional financial resources made available.

The dairy industry made all the right initial moves and then walked away from the opportunity to derive the social and economic rewards it deserved and society needed. Fortunately, individuals within the current political leadership of the U.S. dairy industry have provided partial funding to sustain portions of this nutrition research effort. That continued support provided by a number of units of the National Dairy Council likely insure that critical components of this research program are maintained.

I believe the process of improving nutrition research and education in this country and linking it to the organizations and corporations that have the most to gain is an important task that the Department of Agriculture needs to sustain. My own professional experience over the past fifteen years has convinced me of its value to the citizens of this country. The USDA has many fine programs, not the least of which is the USDA Human Nutrition Research Centers represented here today. In addition there are the nutrition information programs under Assistant Secretary Haas' supervision, which will benefit substantively from her lifelong, professional commitment to consumer education and advocacy.

I would offer these concluding **recommendations** to the Committee for its consideration.

First, the promotion and expansion of the Department's efforts in this area of health care needs to be a priority. Why? Because the health of our citizens and the financial viability of the agricultural sector of our economy are inextricably linked. We win at both ends of the table.

Second, priority and commitment means fiscal support of coordinated research and education projects. While small grant programs of ARS are the life blood of our future successes, the application of what we already have some understanding of, means financial resources to sustain critical masses of researchers such as currently exists at the USDA Human Nutrition Research Centers. I suspect, though, that each of the current directors find themselves severely restrained in their effectiveness, because even these programs are not fully funded and they need to be.

Third, there is no way to avoid the support of the most costly and challenging type of research required, the study of humans. The work must be tied to coordinated, multi-disciplinary research efforts, but funding must be sufficient to insure effective and timely execution. In the end the study of human diseases, their treatment and prevention must be done in humans, the most difficult of all experimental animals.

Fourth, the Department must focus on foods, and not single nutrient issues, in supporting nutrition research, interpreting the results and communicating the findings to all segments of society.

Fifth, the marketing efforts of the various commodity groups operating under the guise of the USDA must be tied to their long-term support of targeted scientific research that applies directly to their commodity. The support has to be substantial and not token in its nature. Businesses involved in scientific enterprises know that R&D budgets of 2, 3, or 4% of revenues will not sustain the corporation. The same applies to the producers of our basic food commodities, 20 to 25% of available promotion dollars need to be expended on a yearly basis in order to generate the information around which promotion efforts should center. I would argue that an advertisement about an agricultural commodity that does not inform the consumer about nutritional benefits of the commodity only serves to employ copy editors, and does little to sustain the agricultural foundations of our society.

I want to again extend my appreciation to the Committee for offering me the opportunity to share my professional experience in nutrition research and education. I believe the questions you are considering are vital ones for the health of our citizens, the viability of the farmers of America, and the fiscal soundness of the United States budget, as the members of Congress face the challenge of reducing health care cost while improving the health and productivity of all members of our society.

LINKING NUTRITION RESEARCH TO MEDICAL EDUCATION AND PRACTICE

TESTIMONY PRESENTED TO

U.S. House of Representatives
Committee on Agriculture
Subcommittee on Department Operations
and Nutrition
Room 1301, Longworth House Office Building
Washington, DC 20515

ON

July 15, 1993

BY

ELEANOR A. YOUNG, PH.D., RD, LD
PROFESSOR, DEPARTMENT OF MEDICINE
DIVISION OF GASTROENTEROLOGY AND HUMAN NUTRITION
THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER
AT SAN ANTONIO
SAN ANTONIO, TEXAS 78284-7878
TELEPHONE: 210-567-4862
TELEFAX: 210-567-4654

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LINKING NUTRITION RESEARCH TO MEDICAL EDUCATION AND PRACTICE

Honorable Eddie De La Garza, Chairman, Committee on Agriculture

Honorable Charles W. Stenholm, Chairman, Subcommittee on Department Operations and Nutritiion

and other members of the Subcommittee

I. Introduction

Thank you for the opportunity to testify before this Sub-Committee on the linkage of nutrition research to the education and practice of physicians.

I am Dr. Eleanor A. Young, Professor, The University of Texas Health Science Center at San Antonio, Texas. I am not a physician, but I do hold a doctoral degree in Nutrition from the University of Wisconsin. For the past 25 years I have served as a faculty member in the clinical Department of Medicine, Division of Gastroenterology and Human Nutrition. During this time I have been involved in: 1) the development of a nutrition education program for our medical students; 2) providing nutrition consultation to patients referred by physicians; and 3) active nutrition research.

INTRODUCTION. During this quarter of a century, there has been increasing evidence to clearly document the necessity for nutrition in the practice of medicine, including:

1) the application of nutrition in the treatment of disease
2) the provision of nutrition education in the prevention of disease
3) the promotion of health so as to prevent nutrition-related disease.

It has become very clear that the application of basic nutrition knowledge and scientific principles is an absolute necessity in the medical care of patients today. It is NO LONGER AN OPTION. We can no longer suggest that perhaps nutritional care of patients may be important. We can no longer relegate nutrition support to a level of minor considerations. We can no longer just ignore nutritional care altogether. Today nutrition is an essential consideration of the overall medical care of every patient, and is thereby a responsibility of every physician.
Thus, it is incumbent that basic nutrition principles be integrated in medical education. Every physician is held responsible for the appropriate application of nutrition support in the care of patients, as well as in the prevention of disease, and the promotion of wellness. This strong stance is based on several sources of evidence briefly summarized here.

II. EVIDENCE FOR THE ROLE OF NUTRITION IN HEALTH AND DISEASE

1. Documentation in the scientific literature.

The evidence accumulated to document the central role of nutrition as related directly or indirectly to eight of the ten most common causes leading to morbidity and mortality in the U. S. places clinical nutrition in a strategic position in disease prevention and health promotion (1).

Estimated Total Deaths and Percent of Total Deaths for the 10 Leading Causes of Death: United States, 1987

Rank	Cause of Death	Number	Percent of Total Deaths
1[a]	Heart diseases	759,400	35.7
	(Coronary heart disease)	(511,700)	(24.1)
	(Other heart disease)	(247,700)	(11.6)
2[a]	Cancers	476,700	22.4
3[a]	Strokes	148,700	7.0
4[b]	Unintentional injuries	92,500	4.4
	(Motor vehicle)	(46,800)	(2.2)
	(All others)	(45,700)	(2.2)
5	Chronic obstructive lung diseases	78,000	3.7
6	Pneumonia and influenza	68,600	3.2
7[a]	Diabetes mellitus	37,800	1.8
8[b]	Suicide	29,600	1.4
9[b]	Chronic liver disease and cirrhosis	26,000	1.2
10[a]	Atherosclerosis	23,100	1.1
. .	All causes	2,125,100	100.0

[a] Causes of death in which diet plays a part.

[b] Causes of death in which excessive alcohol consumption plays a part.

Source: National Center for Health Statistics, *Monthly Vital Statistics Report*, vol. 37, no 1, April 25, 1988.

The Surgeon General's Report on Nutrition and Health (2) summarized the significant accumulation of evidence to support the role of nutrition in the major diseases and disorders.

As a follow up of this Report (2), the Food and Nutrition /Board published an extensive documentation of the epidemiological and clinical data confirming the role of diet related to health and disease. The title, DIET AND HEALTH: IMPLICATIONS FOR REDUCING CHRONIC DISEASE RISK (3), indicates the emphasis placed on reducing the risk of these diseases via dietary changes. The three major objectives of this classic study were:

A. To develop criteria for systematically evaluating the scientific evidence relating dietary components, foods, food groups, and dietary patterns to the maintenance of health and to the reduction of risk of chronic disease;

B. To use these criteria to assess the scientific evidence relating these same factors (dietary components, foods, food groups, and dietary patterns) to health and to the reduction of chronic disease risk; and

C. On the basis of this assessment, to propose dietary guidelines for maintaining health and reducing chronic disease risk, to suggest directions for future research, and to provide the basis for periodic updates of the literature and guidelines as new information on diet and health is acquired.

2. Changing recommendations to actions

In 1989 the Institute of Medicine released the document: Improving America's Diet and Health from Recommendations to Action, a report of the Committee on Dietary Guidelines Implications (4). This document had two major goals:

A. To propose detailed strategies and options for the implementation of dietary guidelines by government agencies at all levels; by educational institutions and those who provide nutrition information to the public; and by certain segments of the private sector, including institutions concerned with mass feeding; and

B. To examine the potential benefits and costs of implementing dietary guidelines.

The role of health care professionals, especially physicians, in putting into action the dietary guidelines was stressed. Physicians usually represent the initial contact made by people seeking health care (estimated in the millions / day).

Since diet/nutrition is a very significant factor in health and disease, a primary question posed is HOW do we enhance awareness, understanding and acceptance of nutrition recommendations so as to effect change in dietary patterns and thereby impact positively on health promotion and disease prevention in the U. S.? Certainly, physicians are the health care providers who are expected to be foremost in leadership in changing dietary recommendations to ACTIONS.

3. Objectives for the year 2000

An important objective published in HEALTHY PEOPLE 2000: NATIONAL HEALTH PROMOTION AND DISEASE PREVENTION OBJECTIVES (5) was:

"Increase to at least 75 percent the proportion of primary care providers who provide nutrition assessment and counseling and/or referral to qualified nutritionists or dietitians."

The baseline figure in 1988 estimated that physicians provided diet counseling for only an estimated 40 to 50 percent of patients (6). Approximately only 26% of adults reported that "eating proper foods" was often or sometimes discussed during visits to a doctor or other health professional for routine care (7). A meta-analysis of 9 physicians surveys, 2 chart audit studies, and 1 consumer survey estimated that physicians provide diet counseling for only 40 to 50 percent of patients (6).

The question is how can physicians provide nutrition counseling in a way that will effect positive change? Specifically, how can physicians realistically do this unless they are appropriately educated, motivated and convinced that nutrition is important in overall health care?

4. Congressional Law 101-445

In 1990, Public Law 101-445 was passed by the 101st Congress. The purpose of this law was: to strengthen national nutrition monitoring by requiring the Secretary of Agriculture and the Secretary of Health and Human Services to prepare and implement a ten-year plan to assess the dietary and nutritional status of the United States population, to support research on, and development of nutrition monitoring, to foster national nutrition education,to establish dietary guidelines, and for other purposes. Section 302, Nutrition Training Report stated:

"The Secretary of Health and Human Services, in consultation with the Secretaries of Agriculture, Education, and Defense, and the Director of the National Science Foundation, shall submit, within one year after the date of enactment of this Act, a report describing the appropriate Federal role in assuring that students enrolled in United States medical schools and physicians practicing in the United States have access to adequate training in the field of nutrition and its relationship to human health".

This law is a clear mandate that all physicians are responsible to see that nutrition care is an essential component of the overall medical care of every patient, and points out again that this is NO LONGER AN OPTION.

5. Care effectiveness and cost effectiveness of nutrition support

A final point in evidence of the responsibility of physicians providing appropriate nutritional support is based on rapidly accumulating evidence that appropriate nutritional support not only can prevent or lessen the impact of disease, but may be able to significantly lessen the economic cost of disease or illness (9-18). A key consideration is not only that appropriate nutrition support may lessen, or even in some cases prevent, the pain, sickness, disease, or trauma associated with disease or disorder via the application of nutritional support, but may also be cost-effective, lessening significantly the economic burden on patients, and thus on total health care (9-18).

The above five facets of evidence strongly support the responsibility of physicians to be educated in basic principles of nutrition, and to apply appropriate nutrition support for every patient.

III. WHAT ARE THE BARRIERS?

Given the overwhelming evidence as briefly outlined above that physicians do indeed have a professional mandate to provide nutrition education and support to their patients, the question at this time, 1993, is WHY has academic medicine generally failed to accept this challenge, this responsibility? Selected barriers follow.

1. Vacuum in Creative Leadership

Without a clear, strong advancement in clinical nutrition education leadership, positive changes are not likely to occur (19) Creative leadership is needed at the academic medical school level, and at the federal level.

2. Competition within the medical curriculum

An overwhelming knowledge base has continued to expand significantly, and somehow must continually be whittled down to"fit" into the 4-year curriculum. Thus, there is much, much more expected to be learned, but within the same time frame as 30 years ago!.

Competition for curriculum time is a major barrier, and there are no easy ways to get around this. However, some creative approaches may be taken to effectively deal with this. Medical schools must find solutions to this barrier.

3. Failure of medical schools to recognize the essential role of nutrition in medical practice

Currently only a very few medical schools have a Nutrition Department or Division staffed with funded faculty, a fact that indicates non-recognition of the essentiality of nutrition in medical education and practice.

4. Funding competition within the medical school

Not only is there competition among departments for curriculum time, but also for funding. Funding is allocated to each department depending on a number of factors,including: faculty support; allocation of space and supportive staff; revenue generating ability via patient care; research funding/achievement; teaching/education responsibilities. Thus, a nutrition department must provide not only nutrition education, but also provide patient care revenue, gain research grant support, and support faculty and supportive staff. Lack of institutional resource base may make it impossible to develop and maintain a nutrition department unless adequate funding base can be provided and maintained.

5. Nutrition care reimbursement system

Lack of a viable reimbursement system for dietary counseling creates a significant barrier in practice. Currently, nutritional counseling in the treatment or management of disease, e. g., diabetic diet, lipid-lowering diet, etc., as well as in the prevention of disease, or promotion of health/wellness, is generally NOT REIMBURSABLE. Consequently, since financial reimbursement drives most of medical practice, and since it appears that in the future greater emphasis will be placed on prevention of disease and wellness, the outlook for changing this situation is not currently optimistically viewed. Even though prevention of disease is cost effective compared to expenditures to try to reverse disease after it may be well established, the practice of medicine has not thus far turned this around.

IV. POSSIBLE ALTERNATIVE INITIATIVES TO ENHANCE NUTRITION EDUCATION AND NUTRITION PRACTICE FOR PHYSICIANS

What positive initiatives can be a means to facilitate an aggressive movement that will ensure nutrition education for all physicians, the subsequent practice of nutrition support for all patients, as well as a focus on prevention of disease and promotion of health?

1. INCREASE NUMBER OF PHYSICIANS CERTIFIED BY THE AMERICAN BOARD OF NUTRITION IN PREPARATION FOR NUTRITION LEADERSHIP IN U.S. MEDICAL SCHOOLS (24,25).

We need increased numbers of physicians who have had appropriate training in clinical nutrition and who have met the standards of the American Board of Nutrition (ABN) so that there will be sufficient numbers of such professionally trained physicians available in practice in the U. S.. These are the professional physicians who are needed to be the leaders in all U. S. medical schools to spearhead the appropriate training of all medical students / housestaff in the application of clinical nutrition in the practice of medicine.

Even if we do have conferences/symposia in order to establish what nutrition should be covered in medical school education, we still need MDs trained in nutrition to be those nutritionist physicians to lead this effort in every medical school.

Without strong MD-nutrition leadership in the medical school setting, programs are not likely to be successful. We need well-trained physicians to be leaders in the medical education / clinical setting of medical schools. The competition for financial funding to develop this leadership is strong at present, especially in light of the cost of medical care and medical education at this time. Financial assistance(or some financial break/reward/ incentive) will be needed. Funding sources are limited for education. Federal funding will be required to achieve this important aspect of advancement of nutrition.

Credentialing by the ABN of physicians who have appropriate background, training and interest in nutrition will be important in order to provide leadership in clinical nutrition in the medical school environment. Eventually,this will enhance the "importance" and"recognization" of MDs in nutrition as are other MDs who hold "boards" in pediatrics, surgery, internal medicine, or other specialties. Most funding support and allocations of education and patient care operate through departments delineated by medical specialties. At present, most medical schools do not have a separate department in clinical nutrition...even though this has been a specific strong recommendation by a number of reports on nutrition in medical education over the past ten years. The National Academy Press publication: Nutrition Education in U. S. Medical Schools, NAS, 1985, indicated the following:

"The committee observed a distinct lack of organizational structure and administrative support for nutrition programs in the schools they surveyed. This environment was found to be counter-productive in efforts to foster the long-term survival of a program. To ensure permanence, the committee recommends that the responsibility for the nutrition program be vested in a separate department or a distinct division of the medical school. In addition, each medical institution should allocate specific funds for the support of at least one faculty position in nutrition." (19).

In order to enhance the above recommendations, Federal funding may make possible or help support:

1) Stipends to help defray the expense of physicians to:
    a. Attend conferences designed to offer comprehensive overview of scientific nutrition principles as well as clinical application of nutrition in preparation for taking the ABN examination.
    b. Funding for physicians to participate in one of several nutrition training programs in the U. S.

8

c. Funding to assist medical school support for continued development of nutrition training programs.
d. Financial support for the development of available conferences/symposia specifically designed to prepare those MDs interested.
e. Stipends for interested physicians to prepare for and take the ABN examination.

2. DOCUMENT: NUTRITION EDUCATION FOR PHYSICIAN by Bruer, Schmidt and Chapel, 1993.

Send a copy of this document to the Dean of every U. S. medical school requesting a response for commitments from them as to what they believe that they can do to improve nutrition education for physicians in their respective schools, and what they plan to do.

3. MEDICAL SCHOOL NUTRITION LEADERSHIP CONFERENCE

Host well planned demonstration conference, or consensus conference for chairpersons of medical school departments to consider the role of nutrition in each specialty, e.g., OB-GYN, surgery, pediatrics, etc., and to raise the level of awareness of need to have nutrition an essential component in practice. This could include: ways to achieve, ways to collaborate, determination of cost-effectiveness.

It is no wonder chairpersons of departments in medical schools do not want to "give up time" in the curriculum for nutrition, as many do not yet know the role that nutrition could play, much less want to "go to bat" for the curriculum time and faculty to do it.

4. DEVELOPMENT OF FEDERAL LEADERSHIP

It is strongly recommended that a central Coordinating Board, or Department, or Task Force, or Office, be established to coordinate:

- -development of a cooperative plan of action with various federal departments/offices.
- -all can contribute in some way
- -each has unique ways to be effective in increasing nutrition education / practice by physicians
- -some have not contributed ...but could

Example: Office of Education.

The Office of Education, 1991, called a meeting of all Governors and obtained a consensus on 6 national goals needed in education to be achieved by the year 2000. The strategy to achieve these goals called for local groups to pool resources with private/public sectors and work with schools/parents to achieve these goals. Panel groups will monitor achievement of these goals.

Wouldn't the Office of Education be effective in perhaps gaining support for nutrition education in medical curriculum using a similar process? Funding such a process?

Example: Office of Education.

It has been estimated that in the U. S. we are spending $39 billion on various aspects of obesity. The prevalence of obesity in the U. S. has NOT decreased. In fact, it has INCREASED, especially in the adolescent age group. It is well established that obesity is a major risk factor contributing to several major "killer diseases" in the U.S.:CVD, hypertension, stroke, diabetes.

What is the medical community really doing about this?

What could be the impact of a NATIONWIDE AWARENESS / EDUCATION about the prevention of obesity, and the wellness of desirable body mass index?

What could be the role of the Office of Education?

5. GENERATE FINANCIAL SUPPORT FROM INDUSTRY

Financial support from industry, especially health care and food industry, may be very open to such support. Perhaps a "tax break" could be provided if they support nutrition in medical schools, e.g.: support for faculty development
support a "Chair in Nutrition"
support a training program
support a faculty position

6. REIMBURSEMENT FOR NUTRITION

Adjustment of mechanisms for reimbursement of codes to include nutrition consultation/support is needed. Changes in the system to include prevention of disease would require different approaches for "reimbursement", and would probably be very influential in enhancing the nutrition education of and practice of nutrition by physicians.

Currently billions of dollars are spent on the treatment of the major killer diseases in the U. S.. Many of these diseases could be prevented or at least lessened in severity if the principles of good nutrition had been an active aspect of life style from early life onward. This is the major "cost-effective" way to significantly decrease health care costs for these diseases (1-3, 9-18).

7. INCREASE THE NUMBER OF NUTRITION-RELATED QUESTIONS ON THE NATIONAL BOARD EXAMS

A careful review of the United States Licensing Examination booklet published to assist candidates prepare for this examination provides an outline of the general principles that medical students are responsible for. It also provides sample questions. For almost every organ system outline, there are nutrition-related concepts, principles, and facts indicated. (Ref. United States Medical

Licensing Examination. Part I. Examination Guidelines and Sample Items. National Board of Medical Examiners, 1991);.

Yet, very few question on nutrition are reported to actually be on the exams. Therefore, a much greater effort should be taken to assure that a significant number of nutrition questions are included. This will indeed enhance the awareness of medical schools to be more cognizant of inclusion of nutrition in the medical curriculum.

8. PHYSICIAN RESPONSE TO THE U. S. PUBLIC

There is need to create a significantly greater visibility of physicians who can effectively respond to the public regarding nutrition. Currently, the public tends to have a poor, negative attitude/opinion regarding the nutrition expertise of physicians, a fact that often encourages the public to seek nutrition information from unreliable sources (13, 26). This tends to inhibit the public from seeking reliable medical/nutrition information. This is often a costly, unproductive, and sometimes dangerous endeavor for the uninformed consumer. The U. S. public will welcome a more pro-active stance from physicians in response to the many questions that they seek to obtain reliable answers to.

9. MONITORING NUTRITION EDUCATION IN MEDICAL SCHOOLS

Funding is needed to support a more exploratory and relevant questionnaire for monitoring nutrition education in medical schools by the Association of American Medical Colleges for the Liaison Committee on Medical Education. Since accreditation is one important way to enhanced medical education, perhaps the LCME could place greater specific emphasis on nutrition in medical education. Some concepts/achievements in nutrition practice would be more important than the "number of hours" in the curriculum.

10. CHAIRS IN NUTRITION

Funding to establish "Chairs in Nutrition" in selected medical schools, perhaps funds matched by the medical school, or perhaps contributed by industry or business, could be very positive in assisting medical schools to achieve a stronger nutrition program.

11. FELLOWSHIPS

Provide fellowships for medical students during medical school with requirement to "give back time" served in a Nutrition Support Service or some other medical nutrition service. (Similar to Army/Navy programs)

Physicians to take one-two years nutrition training in preparation for taking the ABN examination, and to develop creative faculty leadership in nutrition in a medical school.

12. "CAPITATION" FUNDING

Consider "capitation" type of funding to medical schools for development of:
1) Department or Division of Nutrition
2) Nutrition curriculum program
3) Faculty position

13. GRANT FUNDING:

1) Evaluation of effectiveness in nutrition education courses/teaching techniques

2) Computerized nutrition modules, self-interactive programs

3) Computerized student self-assessment of nutrition status
dietary intake

4) Evaluation of application of nutrition assessment by fourth year medical students / residents
in: hospitalized patients
clinic patients
community setting patients

V. INITIATIVES AT THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT SAN ANTONIO

The San Antonio experience of development and maintenance of a viable nutrition program in medical education at the University of Texas Health Science Center, San Antonio, Texas, can be characterized as a quarter century of collaboration, persistence and a conviction that nutrition is an essential aspect of medical education. Initially this direction was facilitated by the fact that this was a new medical school with a bit more ease in moving through the curriculum committee, securing administrative support, and obtaining funding. This would not have happened without the initial and continued leadership of Dr. Elliot Weser. We have had financial assistance from the University of Texas Medical School, and also from a number of other sources, including: The Nutrition Foundation and the Metropolitan Life Foundation.

Briefly, our overall curriculum is outlined in below. This program was designed to be an integrated, longitudinal approach that would build on nutrition concepts and competencies over the four years of medical education. Over the years this plan has fluctuated to some extent, but has remained relatively stable.

The University of Texas Health Science Center at San Antonio
San Antonio, Texas 78284

Integrated Approach to Comprehensive Nutrition in the Medical Curriculum

<table>
<tr><th>MS I
Topics in Nutrition</th><th>MS II
Introduction to Clinical Medicine</th><th>MS III
Therapeutic Nutrition Luncheon Conference Series</th><th>MS IV
Clinical Nutrition Elective</th><th>Housestaff
Conferences Rounds</th></tr>
<tr><td colspan="4">Interdisciplinary Nutrition Task Force</td><td rowspan="2"></td></tr>
<tr><td colspan="4">Nutrition Integrated in Medical Curriculum</td></tr>
<tr><td colspan="5">Nutrition Lecture Series</td></tr>
<tr><td colspan="5">Nutrition Research</td></tr>
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In Year I an elective, Contemporary Topics in Nutrition, is designed to cover 16 basic nutrition topics. It is very popular, is given at the noon time with bring-your-lunch informality. This year of 1992 we have enrolled 160 of 200 medical students.

Year II incorporates a 6-10 hour section in the Introduction to Clinical Medicine course required of all 200 students. With emphasis on nutrition assessment and support, case management presentations, and a symposium forum are utilized to highlight the role of specific nutrients in the pathophysiology of selected diseases.

The clerkship in Year III provides a 10 hour Therapeutic Nutrition Luncheon Conference Series required of all 200 students. The 28 to 30 students on the medical clerkship service participate in a one and one-half hour luncheon once a week for six weeks. Each meal served is one typical of a diet that could be prescribed for a patient, such as: sodium restricted; protein restricted; Step I lipid lowering diet; low-lactose diet. It is a practical approach to some issues essential for the physician in moving concepts of nutrition into an effective mode needed to enhance patient compliance to diet prescribed by the physician.

In Year IV a Clinical Nutrition Elective is available for a two-week (80 hrs) to a four-week (160 hrs) period. The last two years have seen a curtailment of elective time in the fourth year of the medical curriculum, but we have had excellent participation in this elective. Some years up to 90 / 200 students selected this course. Several years it was the most widely selected elective in the fourth year. This elective provides considerable independent study of selected nutrition-related topics with a specific focus on the area of medicine that the student plans to pursue in the

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future. This course has a student-goal but faculty-assisted orientation. All students participate in nutrition assessment and support of patients on nutrition rounds, case management discussions, and student preparation/presentation of selected nutrition issues. Students are generally serious in their approach to utilize their time effectively, and they provide a very positive feedback in their course evaluations.

Most recently a more intense focus on development of a strong, integrated nutrition for our housestaff is in process. It is recognized that this is crucial in developing an effective nutrition service for patients, and in increasing the visibility of clinical nutrition in practice. A growing collaboration among gastroenterology, pediatrics, surgery, and pharmacy faculty is enhancing our efforts to encourage an environment in which nutrition concepts are put into practice as a routine aspect of patient care.

A Nutrition Task Force with representation of all major areas of medicine was initially formed so as to obtain and secure broad faculty participation. Many faculty participate in the above four courses, but also incorporate nutrition concepts in other courses throughout the medical curriculum. We maintain a listing of time and nutrition concepts that are incorporated in the curriculum. In the 1991-92 academic year our analysis indicates that approximately 99 hours directly related to nutrition are covered in the medical curriculum. This emphasis continues to highlight how nutrition plays a role, often an essential, pivotal role,in almost every aspect of medical education. A dual effect of this incorporation of nutrition has stimulated a greater awareness of nutrition in specific clinical areas by physicians who then became more interested in and supportive of nutrition as related to their clinical expertise and practice.

The Nutrition Lecture Series has been a wonderful way to bring many physicians who are nationally and internationally recognized for their contributions to and expertise in nutrition to our campus. Many members of the American Society for Clinical Nutrition and the American Institute of Nutrition have enhanced our efforts to provide a recognition of nutrition on our campus via the Nutrition Lecture Series.

SUMMARY

Clinical nutrition in medical education has made significant strides over the recent past. There are still a number of hurdles to surmount, and goals to achieve. We will do this with critical insight, and a carefully mapped out plan of action. We will continue to bring together advancement of the science of nutrition as reflected primarily in our research as a basis for the application of nutrition in multi-clinical settings and within the constraints of medical care of our times. With all of this, we will sail forward with enthusiasm, a positive spirit of progressive movement, and with a clear sensitivity of the human spirit, especially in the application of nutrition not only to our patients, but also to a positive movement toward the prevention of disease and the promotion of health.

VI. SELECTED REFERENCES

1. National Center for Health Statistics. Advance report of final mortality statistics, 1987. Monthly Vital Statistics Report, vol 37, no.1, April 25, 1988.

2. Koop CE. The Surgeon General's Report on Nutrition and Health. U. S. Department of Health and Human Services, Public Health Service, DHHS (PHS), Publication No. 88-50210, 1988.

3. Committee on Diet and Health. Diet and Health. Implications for Reducing Chronic Disease Risk. Washington, D.C.: National Academy Press, 1989.

4. Committee on Dietary Guidelines Implementation. Improving America's Diet and Health. From Recommendations to Action. Washington, D. C.: National Academy Press, 1991.

5. Healthy People 2000. National Health Promotion and Disease Prevention Objectives. Washington, D. C.: U. S. Department of Health and Human Services, Public Health Service, DHHS, Publication No. (PHS) 91-50212, 1990, pp. 128-129.

6. Lewis CE. Disease prevention and health promotion practices of primary care physicians in the United States. Am J Prev Med, 4 (suppl): 9-16, 1988.

7. Schoenbom CA. National Center for Health Statistics. Health Promotion and Disease Prevention: United States, 1985. Vital and Health Statistics. Series 10, No. 163. DHHS Pub. No. (POHS) 88-1591. Washington, D.C.: U. S. Department of Health and Human Services, 1988.

8. National Nutrition Monitoring and Related Research Act of 1990. Public Law 101-445, 101st Congress.
    House Reports: No. 101-788 (Committee on Agriculture)
    Congressional Record, Vol. 136 (1990).

9. Regenstein M. Reimbursement for nutrition support. Nutr J Clin Pract 4:194-202, 1989.

10. Disbrow DD. The costs and benefits of nutrition services: a literature review. J Am Diet Assoc 89(4)Suppl. S3 - S66, 1989.

11. Splett PL. Effectiveness and cost effectiveness of nutrition care: a critical analysis with recommendations. J Am Diet Assoc 11 (suppl): S1 - S50, 1991.

12. O'Brien DD, RE Hodges, AT Day, KS Waxman, T Rebello. Recommendations of nutrition support team promote cost containment. JPEN 10 (3):300-302, 1986.

13. Bennet J. Hidden malnutrition worsens health of elderly. NY Times, Oct 10, 1992, 14A.

14. Reilly, Jr, JJ, SF Hull, N Albert, A Waller, S Bringardener. Economic impact of malnutrition: a model system for hospitalized patients. JPEN 12:371-376, 1988.

15. Campos, ACL, MM Meguid. A critical appraisal of the usefulness of perioperative nutritional support. Am J Clin Nutr 55:117-130, 1992.

16. Coldirtz GA. Economic costs of obesity. Am J Clin Nutr 55:503S - 507S, 1992.

17. Coats KG, SL Morgan, AA Bartolucci, RL Weinsier. Hospital-associated malnutrition: a reevaluation 12 years later. J Am Diet Assoc 93(1):27-33, 1993.

18. Splett, PL. Position of the American Dietetic Association: affordable and accessible health care services. J Am Diet Assoc 92(6):746-749, 1992.

19. Winick M. Committee on Nutrition in Medical Education. Nutrition Education in U. S. Medical Schools. Washington, D. C.: National Academy Press, 1985.

20. Young EA. Perspectives on nutrition in medical education. Am J Clin Nutr 56:745-751, 1992.

21. Young EA. Nutrition - an essential component of health and health care. J Am Col Nutr 1:227-237, 1982.

22. Feldman EB. Educating physicians in nutrition - a view of the past, the present, and the future. Am J Clin Nutr 54:618-622, 1991.

23. Kushner RF, FK Thorp, J Edwards, RL Weinsier, CM Brooks. Implementing nutrition into the medical curriculum. Am J Clin Nutr 52:401-403, 1990.

24. Weinsier RL. Nutrition education in U. S. medical schools. Nutr. Inter. 1:30 - 36, 1985.

25. Young EA. The American Board of Nutrition: perspectives and

directions. Am J Clin Nutr 46:383-386, 1997.

26. Halsted CH. Toward standardized training of physicians in clinical nutrition. Am J Clin Nutr 56:1-3, 1992.

27. Schollar A. Why med students miss their minimum daily requirement of nutrition education. New Phys 38:16-21, 1989.

Testify.793

Dr. Eleanor Young

1. How can we improve the level of nutrition expertise that physicians receive?

A. Establish a specific creative leadership linkage between the Federal Government (USDA ??) and medical education in nutrition. We need a central coordinating board or agency. Right now, no one agency "pays attention" to nutritional expertise/knowledge of physicians. Could there be a possible linkage with the American Association of Medical Colleges.. ..possibly USDA and AAMC??? It is the AAMC that annually surveys nutrition courses in medical schools. This should include more than "hours in nutrition".

B. Funding that could support strong MD-nutrition leadership:
- -Chair in nutrition at selected schools
- -Development of unique nutrition curriculum
- -Faculty position
- -Fund medical student during medical education with proviso for "pay back" via extended service time in a nutrition support service or some other medical nutrition service

C. Support nutrition training program for physicians who qualify via certification by the American Board of Nutrition. We need some physicians to be leaders in nutrition in medical schools. Appropriate training and passing boards in nutrition (American Board of Nutrition) to increase the number of well-trained physicians in nutrition to be leaders in medical schools is greatly needed.

D. Provide research grants to:
- -Determine the effectiveness of different aspects of medical nutrition education programs
- -Determine the effectiveness of how medical students provide nutrition assessment/support for patients
- -Determine quantity/quality of nutrition application to patient care:
  - - MDs in different fields in medicine
  - - medical students: year 1 vs year 4 medical training
- -Conduct nutrition assessment survey of medical students, male vs female, year 1 vs year 4. Our experience is that when medical students actually experience nutrition assessment of themselves, they are much more aware of this for patients.

E. Need a reimbursement system for nutrition: prevention of disease, and promotion of wellness. This is not now covered for reimbursement in most cases.

F. Need to create greater visibility of physicians who can effectively respond to the public. A recent study showed that in 1990 Americans made an estimated 425 million visits to providers of unconventional therapy versus 388 million to all U.S. primary care physicians. NEJM 328:246, 1993.

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2. How can we more effectively integrate the food production and health care sectors in the future?

A. Encourage more healthful foods in:
-school cafeterias
-in medical school cafeterias
-improve food choices in vending machines (esp. in schools)
-enhance nutrition education in grade and high schools
-enhance first hand experience in how foods are grown, cared for, harvested, transported, nutritional value, costs
-produce some well designed TV programs on food production, marketing, nutritional values and how modified by various factors (genetics, fertilizers, climate, water, etc.)
-good documentary programs on food and how related to health

B. Enhance information about food contaminants and safety of foods and food production

C. Devise some ways that surplus food commodities can be distributed to the poor. We waste too much food while the poor and homeless go hungry. We need to do something about this.

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3. What should be the top priorities for nutrition research and education today?

A. Several suggestions regarding nutrition research in medical education are listed in question 1 above.

B. The role of diet: in breast cancer.
in colon cancer

C. Education and research is needed on OBESITY IN THE U.S. .... how can we make the $39 billion currently estimated to be spent on obesity more effective through education and research on methodology to prevent this disease. Development of effective public televised educational programs on various aspects of prevention could be very effective.

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4. How important is nutrition in preventative health care today?

Preventative health care today is more important today than ever before. The evidence accumulated to document the central role of nutrition as related directly or indirectly to eight of the ten most common causes leading to morbidity and mortality in the U. S. places clinical nutrition in a strategic position in disease prevention and health promotion.

The Surgeon General's Report on Nutrition and Health summarized the significant accumulation of evidence to support the role of nutrition in the major diseases and disorders. As a follow up on this Report, the Food and Nutrition Board published an extensive documentation of the epidemiological and clinical data confirming the role of diet related to health and disease. The title, Diet and Health: Implications For Reducing Chronic Disease Risk, indicates the emphasis placed on reducing the risk of these diseases via dietary changes.

A key consideration is not only that appropriate nutrition support may lessen or even prevent diet-related diseases, but may also be cost-effective, lessening significantly the economic burden on patients, and thus on total health care.
Reference: Health care reform legislative platform: economic benefits of nutrition services. J. Amer. Diet. Assoc, 93(6):686-690. One copy is enclosed.

Submitted by Dr. Eleanor A. Young, Ph.D., RD, LD, Professor, The University of Texas Health Science Center at San Antonio, San Antonio, Texas.

Responses are submitted in answer to supplementary questions forwarded following the hearings held on July 15, 1993, Washington, D. C. before the U. S. House of Representatives, Subcommittee on Department Operations and Nutrition, Washington, D. C..

Eleanor A. Young
Eleanor A. Young, Ph.D., RD. LD
DATE: July 23, 1993

Health care reform legislative platform: Economic benefits of nutrition services

If you are among the two out of three Americans who do not smoke or drink excessively, your choice of diet can influence your long-term health prospects more than any other action you might take. Eight out of the ten leading causes of death, including heart disease, stroke, some types of cancer, and diabetes, are related to diet and alcohol.

— The Surgeon General's Report on Nutrition and Health (1)

The American Dietetic Association, Association of the Faculties of Graduate Programs in Public Health Nutrition, Association of State and Territorial Public Health Nutrition Directors, and The Society for Nutrition Education (The Coalition) believe quality health care must be available, accessible, and affordable to all Americans. Quality health care is defined to include nutrition services that are integral to meeting the preventive, therapeutic, and rehabilitative health care needs of all segments of the population. Nutrition services of screening, assessment, education, counseling, and treatment must be included in health care reform proposals. Nutrition services must be covered as a benefit in the basic benefits package currently being considered by the Administration. Coverage for nutrition services must be provided under Medicare and Medicaid, other public programs, and private and corporate insurance programs. These services must be provided by an RD or other qualified professionals who meet licensing and/or other standards prescribed by the Secretary in regulations.

Any health care reform proposal must include nutrition services. These cost-effective services must be a component of the basic benefits package currently being considered by the Administration for the Medicare and Medicaid programs, other public programs, and private and corporate insurance programs. Nutrition services must be maintained in all comprehensive federal, state, and local programs designed to improve the public's health.

This basic benefits package is fundamental to meeting minimum health care needs of all Americans. Nutrition services included in the basic benefits package are cost-effective, especially for persons at risk for acute and/or chronic medical conditions. These services prevent the need for more costly medical or surgical treatments and reduce costly complications associated with disease progression. Nutrition services are an integral part of health care for those at nutrition risk in primary care, acute care, outpatient care, home care, and long-term-care settings; for mothers and children; for older Americans; and in preventive care.

Nutrition programs and services that promote health and prevent disease are fundamental to health care reform. These programs and services must foster personal and community responsibility for healthy behaviors and life-styles and be delivered in primary care, public health, and community settings. To maximize the benefit, these nutrition programs and services must be culturally appropriate and meet the needs of the vulnerable and frequently underserved segments of our population and be included in preventive care, in maternal and child health care, and in health care services for older Americans.

ECONOMIC BENEFITS OF NUTRITION SERVICES IN ACUTE CARE

Nutrition services in acute care play a vital role in the recovery of the patient. The Coalition supports coverage and indirect reimbursement of nutrition services in the basic benefits package and under Medicare for inpatients. Nutrition services must be identified as separate and distinct from administrative services.

Among hospitalized adults, excess costs for patients with malnutrition were $5,575 for surgery patients and $2,477 for medical patients (2). Adequate nutrition is essential to reduced morbidity and mortality from acute and chronic disease. Well-nourished individuals are more resistant to disease and are better able to tolerate other therapy and to recover from acute illness, surgical interventions, and trauma.

Inadequate nutritional intake can precipitate disease or increase its severity. Early detection of nutrition-related problems and appropriate nutrition treatment are effective in preventing increased morbidity from many diseases. In other words, nutrition treatment can help the patient recover more quickly and decrease the number of days required in the hospital.

Nutrition services are currently included in the room and board charge on an inpatient's bill. Medically necessary nutrition services in inpatient health care settings must be considered specialized care and be reimbursed separately, in a manner similar to other services (eg, those of occupational and physical therapists).

This separate coverage is particularly important in light of the following points:

- Malnutrition occurs in up to 50% of hospitalized patients (3).
- The correlation between malnutrition and disease complications is high.
- Advances have been made in nutrition administered by vein or tube;
- Evidence indicates that nutrition intervention corrects malnutrition, prevents disease complications, and speeds rehabilitation.
- Evidence shows that nutrition is critical to certain patients' progress (eg, those with diabetes, pressure sores, and cardiovascular disease) after acute care.

RDs control costs by ensuring judicious use of costly high-tech nutrition therapies, including parenteral nutrition (nutrition by vein) (4). When parenteral nutrition is used properly, postoperative complications can be reduced by 38% (5). Parenteral nutrition administration and monitoring may cost as much as $500 per hospital day. Substantial savings can be realized when enteral feeding (via tube in the gastrointestinal tract) is substituted for parenteral nutrition. Because nutrition in medical education is in its infancy, it is the RD who has the expertise to make this determination in the acute-care setting. An RD in Philadelphia, Pa, who works with a managed health care company saved her

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This platform was developed by The American Dietetic Association last year and has undergone numerous revisions. Early this year, ADA asked other nutrition organizations to review the platform. Their suggestions were included and three organizations signed into this version of the platform.

ADA members and staff who helped draft or review the platform include the following.

ADA Members: Ann Coulston, MS, RD (coordinated the platform development); Ann Gallagher, RD; Pat Splett, PhD, MPH, RD; Mary Story, PhD, RD; and Rebecca Mullis, PhD, RD.

Technical experts: Tina Colaizzo-Anas, MS, RD; Linda Hofmeister, RD; Eleanor Young, PhD, RD; Bert Connell, PhD, RD; Elizabeth Diemand, MS, RD; Janet Levihn, RD; Eleanor Schlenker; Betsey Haughton, MS, RD; Sara Bonam, MS, RD; Leslie Tinker, MS, RD; Linda Newcomb, MS, RD; Harriet Cloud, MS, RD; Elizabeth Leif, RD; Deborah Golden, MS, RD; Patricia McKnight, MS, RD; and Dorothy Marshall, RD.

ADA staff: Michele Mathieu-Harris, Patti Blumer, and Julie Stauss, RD.

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firm $60,000 by competent discharge planning and transitional feeding planning for a patient receiving parenteral nutrition.

RDs provide an essential role in ensuring the most cost-effective provision of nutrition care. For example, there are more than 200 nutrient products on the market. Cost savings have been realized when RDs manage hospital nutrient solution formularies. One dietitian saved a hospital $40,000 annually by determining that a more expensive parenteral formula was not more therapeutically beneficial than the standard formula.

The American Dietetic Association has developed validated practice guidelines for specific disease states and conditions. These conditions include kidney disease, liver disease, lung dysfunction, burns, diabetes, AIDS, cancer, short-bowel syndrome, bone marrow transplantation, solid organ transplantation, parenteral and enteral nutrition treatment, pediatric nutrition care, and older adult nutrition care. In developing and using practice guidelines, dietitians aim to link standardized practice to positive outcomes, thereby ensuring efficiency and effectiveness in the delivery of care. For example, positive outcomes of nutrition intervention in burn care include increased survival rates, decreased length of hospital stay, decreased length of stay in intensive care units, decreased complications, and decreased negative weight changes (6).

Several factors have contributed to an increase in the demand for nutrition services: the aging of the population, the AIDS epidemic, the higher acuity level of hospitalized patients, and the coexistence of malnutrition with chronic diseases.

In sum, The Coalition recommends separate reimbursement for nutrition services in acute-care settings as a clinically effective and cost-effective component of health care reform.

ECONOMIC BENEFITS OF NUTRITION SERVICES IN OUTPATIENT CARE

Appropriate nutrition services are a cost-effective way to keep people healthy and save scarce health care dollars. The Coalition supports coverage and reimbursement for nutrition assessment and treatment in the basic benefits package and in Medicare Part B, Medicaid, and other plans for high-risk patients. The Coalition supports outpatient nutrition services provided to patients under the care of a physician with development of a plan prescribing the type, amount, and duration of nutrition services.

Because the prospective payment system has decreased the length of hospital stays, many patients go home requiring further care. However, nutrition treatment — previously provided to inpatients who need to follow special diets after discharge — may not be reimbursed by Medicare as an outpatient service. Because these critical follow-up costs may not be paid by Medicare or other sources, many patients do not follow through with the necessary nutrition treatment.

For example, when patients with diabetes are released from the hospital, maintenance of a diet plan can be critical to the stabilization of the health of the patient and prevention of rehospitalization. Diabetes requires daily management — including balancing of food, exercise, and (in some cases) medication — to control blood glucose, maintain appropriate weight, and prevent or delay serious, permanent damage (blindness, amputation, or death). Appropriate nutrition services are a clinically effective way to treat people with diabetes. The most cost-effective use of nutrition services is to keep patients healthy by giving them the training they need to maintain a healthy life-style.

Medically necessary nutrition services in outpatient health care settings must be considered specialized care and be reimbursed in a manner similar to care provided by occupational and physical therapists.

ECONOMIC BENEFITS OF NUTRITION SERVICES IN HOME CARE

Costs of home health care can be reduced by early application of nutrition services for nutrition-related diagnosis. Patients whose care plan includes nutrition treatment and patients on enteral and parenteral nutrition therapy must be assessed and treated in line with the care plan developed with a physician. The Coalition supports coverage and indirect reimbursement of nutrition assessment and treatment as part of the basic benefits package and under the Medicare program.

Because the prospective payment system has decreased the length of hospital stays, many patients are discharged requiring further nutrition treatment. Many of these patients, who cannot be placed in a nursing facility or make periodic trips to the physician's office or clinic, receive health care at home. Nutrition treatment that was previously provided to inpatients who have serious and complex nutrition treatment needs is not currently provided as a home health care benefit.

Many patients are discharged when they still require nutrition therapy by vein (parenteral) or tube feeding (enteral) in the home. Although home enteral and parenteral nutrition can potentially save costs associated with expensive hospitalization, the home care industry has not been able to respond adequately to the care needs of home parenteral and enteral nutrition patients because of lack of reimbursement for nutrition treatment. Excessive costs for these therapies can be reduced by early nutrition assessment and appropriate nutrition treatment in home care settings. Home parenteral or enteral nutrition treatment requires regular follow-up and monitoring by RDs to prevent hospital readmission because of complications.

Provision of nutrition services in the home health care setting is a cost-effective way to treat people with diabetes and other chronic diseases such as kidney failure and AIDS. For example, patients with diabetes are a large population group for which nutrition treatment can be critical to the stabilization of health and the prevention of rehospitalization. Diabetes management requires daily attention to food intake, exercise, and medication to control blood glucose and prevent or delay disease complications.

Currently, nutrition services are included in administrative costs and are not separately billable. Home health agencies with limited administrative funds are often forced to use employees who are not trained to assess the nutritional status of patients. This often leads to complications for the patient, more costly care, and increased use of higher cost options for feeding that are reimbursed by Medicare. Dollars can be saved by using the appropriate health professional.

Medically necessary nutrition services in home health care must be considered specialized care and be reimbursed in a manner similar to care provided by occupational and physical therapists.

ECONOMIC BENEFITS OF NUTRITION SERVICES IN LONG-TERM CARE

Nutrition services provided in long-term care improve the quality of life, slow the rate of physical deterioration, and prevent further costly hospitalization or the need for a higher level of care. The Coalition supports coverage and indirect reimbursement of nutrition assessment and treatment in long-term-care facilities as part of the basic benefits package and under the Medicare program.

It is often assumed that daily provision of three nutritious meals meets the nutrition needs of nursing home residents. In reality, individualized nutrition services are necessary because an increasing number of residents require a higher level of acute care.

For a variety of psychosocial, economic, and medical reasons, the elderly in nursing homes are particularly prone to suffer from protein-energy malnutrition as well as from certain micronutrient deficiencies. Appropriate nutrition services can improve quality of life, slow the rate of physical deterioration, and prevent costly hospitalization or the need for a higher level of skilled care.

Decubitus ulcers (pressure sores) can be a significant problem in nursing home residents. It is estimated that the average pressure sore costs $15,000 to treat and frequently involves surgical treatment (7). Conditions such as anemia, hyperglycemia, dehydration, food-drug interaction, and vitamin/mineral deficiencies also are indicators of patients at risk for development of pressure sores. Nutrition treatment delivered to residents with decubitus ulcers can speed the healing process, and optimal nutrition care can help prevent them from reoccurring. The development of pressure sores correlates directly with the incidence of protein-energy malnutrition.

Many residents are on enteral or parenteral feedings that require the expertise of an RD to determine the optimum balance of nutrients and fluid. Consultation by an RD in these situations can create significant savings for the facility. For example, a skilled nursing facility saved $3,000 per month on one patient after an RD conducted a nutrition assessment and evaluation that resulted in improved patient acceptance of meals and decreased use of a costly supplement.

Federal requirements mandate that nursing facilities employ a qualified dietitian on a full-time, part-time, or consultant basis. Nutrition services are included as a part of the facility's administrative costs, rather than as a separate charge. Financial pressures in the health care delivery system often force facilities to use a consultant dietitian for a minimum number of hours per month, and then use less qualified personnel to cover the rest of the time. The increase in acuity level of the residents combined with the few hours the dietitian has in the facility make it more likely now that the nutrition needs of residents are not met. This, in turn, can lead to increased complications and health care costs.

Therefore, The Coalition recommends coverage and indirect reimbursement for nutrition assessment and treatment in long-term-care facilities.

ECONOMIC BENEFITS OF NUTRITION SERVICES IN PREVENTIVE CARE

Health promotion and disease prevention nutrition services and programs are necessary, cost-effective, and humanitarian measures for the prevention of and delay in the progression toward disease. These services and programs must be universally available and offered in a variety of settings that are both traditional and innovative and that foster personal responsibility for health behaviors and life-style. To maximize the benefit, nutrition services must be responsive to an individual's culture, learning capacity, and life situation and must ensure access to a nutritious diet. The Coalition supports inclusion of nutrition services and programs in preventive care.

The goals of preventive care are to keep people healthy in their communities, to reduce the incidence and severity of preventable diseases, to improve health and quality of life, and to reduce total medical costs, particularly costs for medication, hospitalization, and extended care.

A quality health care system must be available, accessible, and affordable, contain mechanisms for monitoring and evaluating the public's health, ensure that providers of nutrition care programs and services are qualified and have advanced nutrition training/education, use clinical and applied research to improve health care practice, and maintain a comprehensive federal, state, and local public health infrastructure to protect the community's health.

A quality health care system that is available, accessible, and affordable to all Americans must maintain a comprehensive federal, state, and local infrastructure. The infrastructure must be accountable for monitoring and evaluating the public's health, for ensuring that providers of health care programs and services are qualified and have advanced training/education in nutrition, for ensuring accessibility, for applying research to health care practice, and for coordinating the private and public delivery systems.

Eating habits can have a significant impact on the incidence and severity of many health disorders. A direct relationship clearly exists between nutrition risk factors and certain key diseases. Consider the following information released in the *Surgeon General's Report* (1) in 1988.

- *Coronary heart disease.* Despite the recent sharp decline in the death rate for coronary heart disease, more than 1.25 million heart attacks occur each year (two thirds of them in men), and more than 500,000 people die each year as a result. It still accounts for the largest number of deaths in the United States. (Today, the cost of treatment is $136 billion.)
- *Stroke.* In 1987, strokes occurred in about 500,000 people, resulting in nearly 150,000 deaths and long-term disability for many more individuals. Approximately 2 million Americans suffer from stroke-related disabilities, at an estimated annual medical cost of more than $11 billion.
- *High blood pressure.* High blood pressure is a major risk factor for both heart disease and stroke. Almost 58 million people, including 30 million who are under the age of 65, have high blood pressure. Occurrence of hypertension increases with age and, with the aging of the population, will become a more prevalent risk factor.
- *Cancer.* More than 475,000 people died of cancer in the United States in 1987, making it the second leading cause of death in this country. During the same period, more than 900,000 new cases of cancer occurred. In 1985, the costs of cancer were estimated to be $22 billion for direct health care, $9 billion in lost productivity because of treatment or disability, and $41 billion in lost productivity because of premature mortality, for a total cost of $72 billion.
- *Diabetes Mellitus.* Approximately 11 million Americans have diabetes, but almost half of them have not been diagnosed. In addition to the nearly 38,000 deaths in 1987 attributed directly to this condition, diabetes also contributes to an estimated 95,000 deaths per year from associated cardiovascular and kidney complications. Diabetes care costs $20 billion per year.
- *Obesity.* In the United States, obesity affects approximately 34 million adults aged 20 to 74 years; the highest rates are among the poor and minority groups. Obesity is a risk factor for coronary heart disease, high blood pressure, diabetes, and possibly some types of cancer, as well as for other chronic diseases.

The *Surgeon General's Report* (1) goes on to state that eating and drinking habits contribute to heart disease, cancers, strokes, diabetes mellitus, obesity, and other fatal diseases. The link between dietary fat and coronary heart disease is well established, and now early studies appear to link fat intake to some cancers, specifically breast, colon, and prostate cancers.

In an aging population, a higher-fat, higher-calorie diet and less physical activity results in more obesity. The incidence of diabetes is increasing by 6% each year because of the change in the American life-style. Major risk factors include being over 40 years old, overweight, and a member of a minority population and having a blood-related family member with diabetes.

Nutrition programs and services, the cornerstone of treatment, can prevent, postpone, or mitigate the onset or progression of this disease and thus save scarce health care dollars.

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Other benefits of nutrition services include prevention of obesity, coronary heart disease, some types of cancer, and other chronic diseases and their complications; improved recovery from illness; improved physical, social, and mental well-being; reduction in the need for medical services and recurrent hospitalizations because of malnutrition and related problems; maintenance of independent living; and costs averted for medical and institutional care, surgery, and drug therapy.

Healthy People 2000 (8) states profoundly that a nation's health is measured by more than its death rate. Good health comes from reducing unnecessary suffering, illness, and disability. It comes also from the citizens' improved quality of life and sense of well-being. *Healthy People 2000* acknowledges that this nation has the means to prevent premature death and disability and achieve the potential for Americans to live healthy lives in their own communities. We must now implement what we know about promoting health and preventing disease. Personal choices have a powerful influence over one's health prospects. The public must have the information and guidance necessary to make the wisest health choices, and nutrition plays a daily role in those choices.

Health promotion and disease prevention are our best opportunities to reduce the ever-increasing portion of our resources spent to treat preventable diseases and functional impairment.

ECONOMIC BENEFITS OF NUTRITION SERVICES IN MATERNAL AND CHILD HEALTH

Nutrition services for pregnant women can lead to the proper growth and development of the fetus and prevention of low-birth-weight infants and costly complications. Nutrition services are of critical importance to promote growth and development of infants and children, particularly those with developmental disabilities and chronic medical conditions. The Coalition supports family-centered nutrition services for all pregnant and breast-feeding women and for infants and children and supports referral to established programs such as the Special Supplemental Food Program for Women, Infants, and Children (WIC) and EPSDT. Pregnant women and children identified at risk, or with other complications or conditions, should receive preventive, therapeutic, and rehabilitative nutrition services.

No period in life is more important to good health than the months before birth. The prenatal period may be the starting time for good health or the beginning of a lifetime of illness and shortened life expectancy. Early nutrition intervention can substantially change the course of events to improve pregnancy outcome.

Each year in the United States, nearly 39,000 babies die before the age of 1 year. Low birth weight, which occurs in 7% of all births, is the greatest single hazard to infant health, costing the nation $3.5 to $7.5 billion each year. Medicaid pays almost $19,000 per delivery of a low-birth-weight infant vs just $ 3,500 per delivery of a normal-weight infant (9). Poor nutrition is one of the major risk factors associated with low birth weight. Women who gain less than 21 lb during pregnancy are more than twice as likely to deliver low-birth-weight infants than are those who gain more. Nutrition is also vital to growth and development (including brain function development) of infants.

Assessment of nutritional status is an integral part of care at the beginning of pregnancy and periodically throughout pregnancy and breast-feeding to provide continuing monitoring and recommend appropriate intervention. Nutrition intervention is cost-effective. In 1992, the US General Accounting Office estimated that every $1 spent on the WIC program for pregnant women yields up to $4.21 in Medicaid savings.

Specialized professional counseling on feeding should be provided to parents of low-birth-weight infants, other infants at high risk, and infants who require special formulas. Parents of children with special health care needs should also receive ongoing professional advice on appropriate diets and feeding methods. These include children with physical or developmental disabilities or those with a chronic medical condition caused by or associated with genetic/metabolic disorders, birth defects, prematurity, trauma, infection, or perinatal exposure to drugs. These children make up 10% to 15% of the pediatric population, but the costs of their care are disproportionately high (10).

Common nutrition problems among children — obesity, failure to thrive, undernutrition, iron deficiency, and dental caries — can have significant short-term and long-term consequences. Because eating habits are formed at an early age, the establishment of healthful eating patterns by children is particularly important. Children need good nutrition during childhood for adequate growth, development, and maintenance of health to decrease the cost of health care later in life.

Nutrition problems among adolescents include obesity, chronic dieting, eating disorders, hyperlipidemia, and dental caries. Of American children and adolescents, 15% to 27% are obese. The prevalence of obesity among children in the United States has increased significantly in the last two decades, and these children have an increased risk of adult obesity and its complications. The potential cost of these diseases could be prevented or significantly reduced with nutrition services for youth in primary care and other preventive health care settings.

ECONOMIC BENEFITS OF NUTRITION SERVICES FOR OLDER AMERICANS

Nutrition assessment and treatment are essential to decreasing morbidity, mortality, and attendant health care costs for vulnerable older Americans. The Coalition supports the Nutrition Screening Initiative recommendation for the inclusion of nutrition screening for this population. For those identified as being at nutritional risk, nutrition assessment and treatment must be covered and reimbursed by Medicare.

Every day 5,000 people turn 65, and by the year 2030, 21% of the population will be over the age of 65 (11). Advancing age brings increased dependency and added health care costs. Today, older Americans make up almost 12% of the population but account for 36% of health care costs and 30% or more of all hospital stays and drug prescriptions (11).

The impact of chronic health problems increases with age. Eighty-five percent of the older population has a chronic disease such as diabetes, hypertension, or cancer (12). Many of these diseases are diet related. Cardiovascular disease affects 50% of people over age 70 (13). Decline in nutritional status is not an inevitable part of the aging process; rather it is environmentally determined and frequently results from inattention to risk factors that can be improved by nutrition screening, assessment, education, counseling, and treatment.

Nutritional risk is the most important predictor of the total number of physician visits, visits to physicians in emergency rooms, and the occurrence of hospital episodes, according to a study by Wolinsky (14). Twenty-five percent of the "old" old are admitted to the hospital with moderate to severe malnutrition (15). In a study of older patients admitted to a hospital, those who were malnourished had actual hospital charges double that of those who were not malnourished, and their average length of stay was 5.6 days longer than patients without malnutrition (16). Proper nutrition assessment and treatment for those vulnerable older persons are essential in decreasing health care costs.

Once older persons have been identified as malnourished, services through public/private partnerships, such as home-delivered meals, should be made available to those who need them.

Adequately nourished patients have decreased morbidity and mortality and fewer secondary medical complications and diseases. Their wounds heal faster, they have fewer infections, and their hospitalizations are shorter. These factors all reduce Medicare, Medicaid, and other third-party payer costs.

Nutrition services are critical because of their direct and immediate impact on the patient's health or medical condition. Provision of nutrition services decreases costs of medical and institutional care, surgery, and drug therapy. Often elderly patients do not seek or follow up on recommended nutrition treatment because the cost of such services is not reimbursed to them.

OVERVIEW OF COSTS TO THE AMERICAN PUBLIC FOR CHRONIC DISEASE

Nutrition is a daily concern for all Americans. For the past 15 years Americans have become increasingly health conscious. However, disturbing statistics still exist as to the ability of Americans to understand and implement the array of messages they receive on nutrition and health.

- One third of all Americans are overweight (17).
- 1.5 million deaths in 1987 were diet related (1).
- More than 250,000 (7%) of US infants have low birth weight, which contributes to the United States being ranked 23rd among industrialized countries in infant mortality (18).
- Of American children and adolescents, 15% to 27% are obese (19).
- The United States spends $2.3 billion *daily* on health care. In 1992, diet-related disease consumed a major portion of the $838.5 billion price tag for this nation's health costs (20).
- More than $200 billion is spent for treatment of diet-related illness affecting 100 million Americans, including heart disease, high blood pressure, cancer, diabetes, and obesity (1).
- More than $100 billion is spent for coronary heart disease in direct health care expenditures alone (8).
- More than $72 billion is spent for cancer, including productivity losses (1).
- $39.3 billion is spent on obesity (21).
- Between $3.5 and $7.5 billion is spent annually on low-birth-weight infants (8, 18).
- $302 billion, or 36% of health care costs are spent for older Americans, whereas Medicare spent just $102 billion on older Americans in fiscal year 1990 (22).
- $20 billion is spent annually on diabetes treatment, according to figures from the American Diabetes Association.
- Another $33 billion is spent annually on illusionary "quick fix" weight loss solutions by 65 million Americans, according to Representative Ron Wyden's opening statement before the House Subcommittee on Regulation, Business Opportunities, and Energy Hearing: Safety and Effectiveness of Weight Loss Programs (May 7, 1990).

The main challenge is no longer to determine what eating patterns to recommend to the public (although there is more to be learned), but how to inform and encourage an entire population to eat so as to improve its chance for a healthier life, thus driving down the cost of health care. There is a clear need for comprehensive, coordinated action to improve Americans' diet and health, as documented in the following federal publications:

- *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* (8).
- *The Surgeon General's Report on Nutrition and Health* (1).
- *Guide to Clinical Preventive Services: An Assessment of the Effectiveness of 169 Interventions*, issued by the US Preventive Services Task Force, 1989.
- *The Dietary Guidelines for Americans*, 3rd ed, issued by the US Departments of Agriculture and Health and Human Services, 1990.
- *Diet and Health*, issued by the Institute of Medicine, National Research Council of the National Academy of Sciences, 1989.

In spite of the overwhelming documentation in these reports linking diet to disease, the United States spends only 3% of its health care dollars on preventing disease, according to the Centers for Disease Control.

The nation can no longer afford to ignore its own reports and must reduce the high cost of disease in this country. Nutrition programs and services are the cornerstone of cost-effective prevention and must occur early in life to help drive down the spiraling cost of health care. More aggressive nutrition intervention early in life can have major impact on disease.

References

1. *The Surgeon General's Report on Nutrition and Health.* Washington, DC: US Dept of Health and Human Services; 1988. DHHS publication (PHS) 88-50210.

2. Reilly J, Hull SF, Albert N, Walker A, Bringardener S. Economic impact of malnutrition: a model system for hospitalized patients. *JPEN.* 1988; 88:371-376.

3. Coats KG, Morgan SL, Bartolucci AA, Weinsier RL. Hospital-associated malnutrition: a reevaluation 12 years later. *J Am Diet Assoc.* 1993; 93:27-33.

4. Position of The American Dietetic Association: the role of the registered dietitian in enteral and parenteral nutrition support. *J Am Diet Assoc.* 1991; 91:1440-1441.

5. The Veterans Affairs Total Parenteral Nutrition Cooperative Study Group. Perioperative total parenteral nutrition in surgical patients. *N Engl J Med.* 1991; 325:525-532.

6. Paulsen LM, Splett PL. Summary document of nutrition intervention in acute illness: burns and surgery. In: Splett PL, director. Effectiveness and Cost Effectiveness of Nutrition Care: A Critical Analysis with Recommendations. *J Am Diet Assoc.* 1991; 91 (suppl): S15-S19.

7. *Study Guide: Prevention and Treatment of Pressure Sores.* Evansville, Ind: Bristol-Myers Co; 1989.

8. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives.* Washington, DC: US Dept of Health and Human Services; 1990. DHHS Publication (PHS) 91-50213.

9. Schore J. *The Savings of Prenatal Costs for Newborns and Their Mothers From Participation in the WIC Program.* Washington, DC: Food and Nutrition Service, US Department of Agriculture; 1990.

10. Baer M, Farnan S, Mauer A. Children with special health care needs. In: *Call to Action: Better Nutrition for Mothers, Children and Families.* Washington, DC: National Center for Education in Maternal and Child Health; 1990.

11. *Statistical Abstract of the United States: 1991.* 111th ed. Washington, DC: US Bureau of the Census; 1991.

12. Roe D. *Geriatric Nutrition.* Englewood Cliffs, NJ: Prentice Hall; 1992.

13. Craig L. *Nutrition and Aging.* Columbus, Ohio: Ross Laboratories; 1991.

14. Wolinsky FD, Coe RM, Miller DK, Prendergast JM, Creel MJ, Chavez NM. Health service utilization among the non-institutionalized elderly. *J Health Soc Behav.* 1983; 24:325-337.

15. Agarwal N. American Society for Clinical Nutrition, conference abstract. May 1986.

16. Robinson G, Goldstein M, Levine G. Impact of nutritional status on DRG length of stay. *JPEN.* 1987; 11:49-51.

17. Forster JL, Jeffrey RW, Schmid TL, Kramer FM. Preventing weight gain in adults: a pound of prevention. *Health Psychol.* 1988; 7:515-525.

18. *Early Intervention: Federal Investments Like WIC Can Produce Savings.* Washington, DC: US General Accounting Office; 1992. Publication No. GAO/HRD-92-18.

19. Gortmaker S, Dietz W, Sobol A, Wehler C. Increasing pediatric obesity in the United States. *Am J Dis Child.* 1987; 141:535-540.

20. 1 of Every 7 dollars last year was consumed by health care. *Washington Post.* January 4, 1993.

21. Colditz GA. Economic costs of obesity. *Am J Clin Nutr.* 1992; 55:503S-507S.

22. *Aging America: Trends and Projections.* Washington, DC: US Dept of Health and Human Services; 1991. DHHS Publication 91-28001.

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DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20250

STATEMENT OF
C. EUGENE BRANSTOOL
ASSISTANT SECRETARY FOR MARKETING AND INSPECTION SERVICES
U.S. DEPARTMENT OF AGRICULTURE

BEFORE THE
HOUSE COMMITTEE ON AGRICULTURE
SUBCOMMITTEE ON DEPARTMENT OPERATIONS AND NUTRITION

JULY 15, 1993

Mr. Chairman and Members of the Subcommittee, I am pleased to have this opportunity to present this statement on the nutrition activities of Marketing and Inspection Services agencies.

The agencies within the Department of Agriculture's (USDA) Marketing and Inspection Services are responsible for a number of diverse activities, from strengthening the economic position of farmers and other rural residents, to controlling animal and plant pests and diseases, to inspecting grain, meat and poultry.

Marketing and inspection continue to be our major focus. However, over the past few years, we have assumed new responsibilities in the nutrition education arena. This is not too surprising, considering our ongoing role in ensuring a safe and high quality food supply and our recent nutrition labeling initiative. In addition, we operate a toll-free Meat and Poultry Hotline, which provides an effective way to deliver information to consumers about the food they eat. Clearly, USDA agencies such as the Human Nutrition Information Service (HNIS), the Food and Nutrition Service (FNS) and the Extension Service have a greater role to play in nutrition education than we do. However, our role has expanded, and needs to be represented in a discussion of nutrition education activities within USDA.

Meat and Poultry Hotline

I will begin with our activities related to the Meat and Poultry Hotline. USDA's Food Safety and Inspection Service (FSIS) has operated a Meat and Poultry Hotline since 1979; since 1985, the hotline has been toll-free and nationwide to reach a larger and more geographically dispersed audience. Staffed by home economists and registered dietitians, the hotline received almost 138,000 calls last year from consumers about the safe handling of meat and poultry.

AN EQUAL OPPORTUNITY EMPLOYER

Several years ago, FSIS noticed an increasing number of calls and questions on nutrition issues. Recognizing the need for interagency cooperation in providing nutrition information to consumers, we consulted with HNIS, FNS, and the rest of the nutrition education community within USDA on this issue. In October 1991, we began responding to basic nutrition questions regarding meat and poultry on the hotline. Questions that go beyond this general scope continue to be referred to HNIS, the Extension Service, the National Agricultural Library, and other appropriate health care professionals. This year, we have received 560 calls related to nutrition, approximately 3 percent of the total calls received.

Nutrition Label Reform

The decision to begin answering nutrition questions related to meat and poultry products coordinated well with another initiative that was underway--nutrition label reform. In 1989, USDA joined the Department of Health and Human Services (HHS) to sponsor a study by the National Academy of Sciences to provide options for improving food labeling. In November 1991, FSIS issued a regulatory proposal for a mandatory nutrition labeling program for processed meat and poultry products and voluntary guidelines for single ingredient, raw meat and poultry products. The Food and Drug Administration (FDA) simultaneously proposed regulations on nutrition labeling for foods other than meat and poultry to comply with the Nutrition Labeling and Education Act of 1990. While FSIS was not required by this legislation to issue regulations for meat and poultry, the agency proposed such regulations under the Federal Meat Inspection Act and the Poultry Products Inspection Act. After soliciting public input through hearings and comments in response to regulatory proposals, FSIS and FDA issued final nutrition labeling regulations on January 6, 1993. The new label will appear on meat and poultry products by July 1994, although some manufacturers may choose to use the new labeling sooner.

The new nutrition labeling was designed with today's public health priorities in mind. It reflects the fact that conditions linked in part to diet, such as heart disease and some forms of cancer, have become much more prevalent than nutritional deficiency diseases, such as scurvy, of past generations. The new label provides more specific information on fat, for instance, detailing how much saturated fat and cholesterol are in the product.

Because the new labeling reflects current knowledge regarding nutrition and health and provides more specific information on nutrients, it can be a useful nutrition education tool in combination with other efforts. For that reason, we spent much effort during the developmental stages ensuring that the labeling was as useful as possible to consumers. And, we are spending much effort now ensuring that educational programs to help consumers use the new labeling are in place. I must emphasize at this point that we have undertaken these activities in full cooperation with the FDA as well as the many USDA agencies, represented here today, involved in nutrition education.

Public Education Campaign on the New Label

USDA and FDA initiated their public campaign on the new labeling in 1991, recognizing that consumers would need assistance in making accurate, sound dietary choices in accordance with the Dietary Guidelines for Americans. Recognizing that a cooperative effort was the most effective way to accomplish this goal, the agencies coordinated a public and private sector National Exchange for Food Labeling Education to include representatives from Government, and health, consumer, industry, and educational groups. The Exchange allows these groups to pool their various resources and, in some cases, their funds, to carry out this massive public education campaign.

A particular goal of the Exchange is to see that the labeling educational needs of special populations, such as older Americans, children, people with dietary restrictions and people with low reading skills, are met.

The Exchange holds periodic public meetings to identify educational needs, discuss and analyze research, and establish new programs. Its first meeting, held in February 1992, dealt with campaign strategy and the education initiatives of public and private-sector groups. The second meeting, in September 1992, focused on the communication process as it relates to food labeling. A third meeting, "Educational Challenges of the New Food Label," was held in June 1993.

Among the food labeling education projects FSIS has developed or that are in progress include a joint FDA/USDA consumer brochure, a separate brochure for low literacy adults, and a special issue of FSIS' consumer magazine, Food News for Consumers.

Research plays an important part in the campaign to help ensure that the materials developed are properly targeted, carry clear and understandable messages, and are properly disseminated. Currently, FSIS, FDA, and HHS' Public Health Service are collaborating on a study of consumers' use of food labels.

The education campaign will be a multi-year effort, with the organizations involved continuing to develop education materials and programs as the new labeling is phased-in. FDA's and USDA's intent is to establish a self-perpetuating campaign that can be integrated into the routine educational activities of public and private-sector organizations for years to come.

New Products in the Marketplace

In addition to providing a tool for nutrition education, USDA believes the new food labeling will serve another function--that is, encouraging companies to manufacture meat and poultry products with improved nutritional profiles. We have seen that trend already, with an increase in products with nutritional claims such as "light" and "low fat." However, the new nutrition labeling requirements are now mandatory for processed products, and nutrient content claims more standardized. As a result, consumers will receive more accurate information on the nutritional value of various products, which we believe will encourage companies to improve their products further.

I mention this point because I believe it is important to recognize that not only is it important to educate consumers about nutrition, but we must also provide the American public with foods that meet current nutritional goals. We must ask ourselves whether we are doing enough to ensure that consumers are offered such products in the marketplace.

For that reason, I want to emphasize that the Marketing and Inspection Service agencies, through their regulatory and marketing activities, are helping make available to consumers products with improved nutritional profiles. This is a good example of where regulatory and marketing functions coexist very well. Through these programs, we can influence the quality and nutritional benefits of products the industry markets and the consumer demands.

An example of these nutritional benefits has been changing grade standards for meat to reflect the growing demand for leaner cuts. In 1987, for instance, the Agricultural Marketing Service (AMS) renamed the "Good" grade for beef to "Select," which resulted in a significant increase in consumer use of the lower fat grade. While this was not technically a change in a grading standard, but rather a name change, it made the lower fat grade more appealing, and certainly more responsive to consumer demand.

In 1989, beef quality and yield grade were separated, enabling cattle producers who produce cattle with less fat to be paid more for their animals.

AMS also changed the U.S. grading standards for lamb and mutton to respond to a consumer demand for leaner lamb. Payment to producers is more for the lean portion of the carcass than for the fat portion.

Another way we are promoting the marketing of products with better nutritional profiles is by reassessing our policies on food standards. FSIS is exploring whether existing standards of identity and composition for meat and poultry products may actually impede the development of products that are lower in fat, cholesterol, and other less desirable food components.

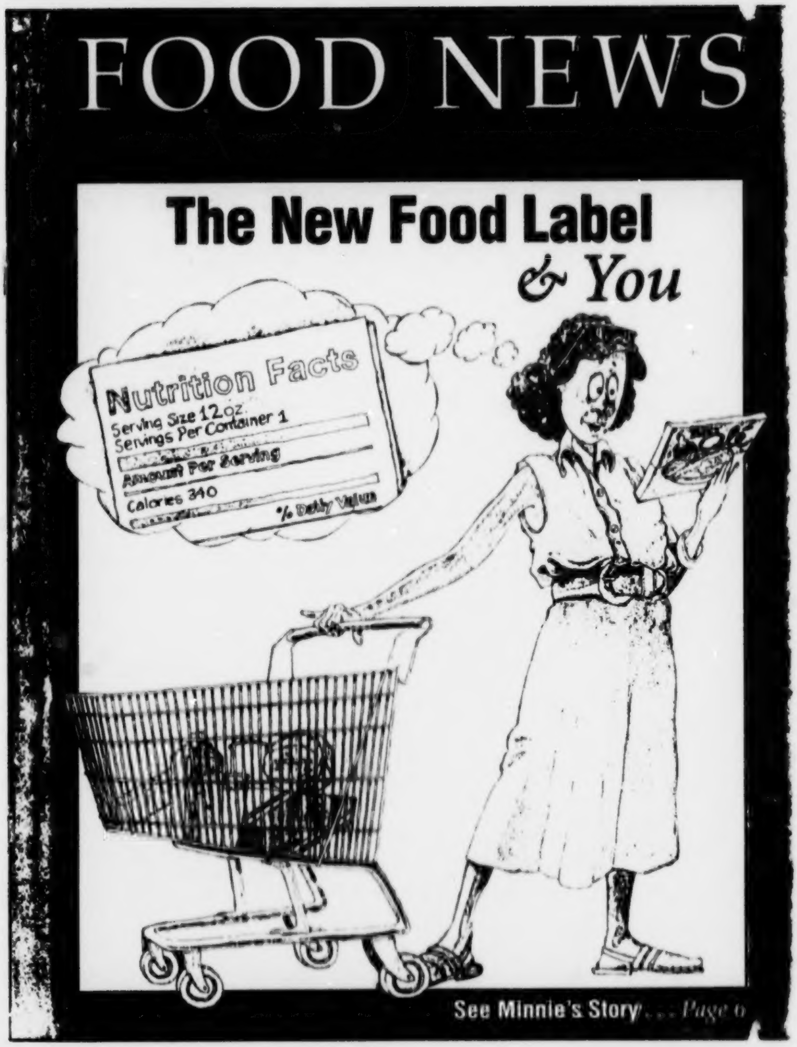
FSIS has roughly 60 regulatory standards for meat and poultry products such as beef stew and frankfurters. The standards for the most part set requirements for minimum meat and poultry content and limits on maximum fat and water. These standards were originally designed to prevent economic adulteration and dilution of protein and other beneficial nutrients. However, due to the shift of scientific and public health concern from underconsumption to overconsumption of certain food components, we need to reassess our policies.

That is why we are in the process of developing a generic standard of identity for substitute meat or poultry products that resemble the time-tested and recognized traditional versions. We want to provide another option to manufacturers who want a product with an improved nutrient profile--and call it by its traditional name. For instance, under a generic standard for substitute products, a processor who wants to produce a frankfurter with a better nutritional profile could add other ingredients, such as fat replacers, not allowed in the traditional standard. The processor would have to include a descriptor such as "lean" or "low fat" next to the product name to differentiate it from the traditional frankfurter. Both traditional and substitute products would carry nutrition labeling.

These three components--better nutrition labeling, comprehensive nutrition education, and meat and poultry products with improved nutrient profiles--together provide a sound strategy toward improving the nutritional status of Americans.

Mr. Chairman, that concludes my statement.

(Attachment follows:)



FOOD NEWS

The New Food Label & You

Nutrition Facts
Serving Size 12 oz
Servings Per Container 1
Amount Per Serving
Calories 340
% Daily Value

See Minnie's Story . . . Page 6

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FOOD NEWS
Spring-Summer 1993
Vol. 10, No. 1-2

Food News for Consumers is published by USDA's Food Safety and Inspection Service, the agency charged with ensuring the safety, wholesomeness and proper labeling of the nation's meat and poultry supply. The magazine reports how FSIS acts to protect public safety, covering research findings and regulatory efforts important in understanding how the agency works and how consumers can protect themselves against foodborne illness.

Assistant Secretary for Marketing and Inspection Services
C. Eugene Branstool

FSIS Administrator
H. Russell Cross

Associate Administrator
Donald L. White

Acting Director, Information and Legislative Affairs
Patricia D. Wagner

Director, Consumer Awareness
Wayne Baggett

Editor
Mary Ann Parmley
(202) 690-0351

News Wires Editor
Herb Gantz

Design Director
Julie Olson

Cover Illustration
Mark Holmes

Production Coordinator
Maxine Grant

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Send comments and inquiries to:
Editor, Food News for Consumers,
FSIS/ILA, Room 1180 South,
U.S. Department of Agriculture,
Washington, DC 20250,
Telephone: (202) 690-0351.

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Now: Accurate Nutrition Labeling

A Message from FSIS Deputy Administrator for Regulatory Programs

Margaret O'K. Glavin

It is our mission at USDA's Food Safety and Inspection Service to see that the nation's meat and poultry products are safe, wholesome and accurately labeled. That's our responsibility under federal law.

Now I'm proud to say we're expanding that mission in a vital new direction. We are saying meat and poultry labels must also give the product's nutritional profile.

Why? Because we know that what we eat has an important impact on our health. There are substances in food many Americans should limit—fat, cholesterol, etc. And there are other nutrients—certain vitamins and minerals—that physicians and dietitians tell us we're not getting enough of. The new labels will give people the information they need to make healthier diet choices.

Still, this new information may at first seem confusing. That's why FSIS is working with FDA, other USDA agencies and the broader food community to teach consumers how to use the new labels. This special issue is an important step. There are stories on how to read the new nutrition panel and interpret every section of the new label. There is a story with answers to questions consumers are asking today about the nutritional aspects of meat and poultry products.

For food writers and educators we've supplied a background piece, "Food Labeling and the Law," to explain which federal agencies are doing what and why. And for those trying to "explain" the new labels to the public, see "NEFLE News" for a list of other label education publications now or soon to be available.

It's been four years since 1989 when we first asked the National Academy of Sciences to verify how important solid nutrition labeling could be to the American public. Now, finally, you'll be seeing the fruits of our efforts. This year and next the new labels will be making their debut on grocery shelves.

I know it was worth the time and effort it took to get these nutrition labels to you. Please take the time to learn how to *use* them to stay healthy and keep your families healthy.

Ms. Glavin, who joined FSIS in 1982, is responsible for the proper labeling of meat and poultry products including the use of approved additives and packaging materials. She also heads compliance and program review activities.

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(The complete report is held in the committee files.)

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STATEMENT OF
DR. JACQUELINE DUPONT
NATIONAL PROGRAM LEADER FOR HUMAN NUTRITION
AGRICULTURAL RESEARCH SERVICE
U. S. DEPARTMENT OF AGRICULTURE
BEFORE THE
SUBCOMMITTEE ON DEPARTMENT OPERATIONS AND NUTRITION
COMMITTEE ON AGRICULTURE
U. S. HOUSE OF REPRESENTATIVES

JULY 15, 1993

Mr. Chairman and Members of the Subcommittee, I appreciate the opportunity of submitting this statement discussing briefly the nutrition research activities of the Department of Agriculture's (USDA) Agricultural Research Service (ARS).

USDA's role has always been to ensure that the nation has a safe, adequate food supply. It also means producing a variety of foods that, collectively, provide all the nutrients essential for a balanced diet. To do this, an essential need is for precise knowledge of what the body requires for optimal growth and health. Recommended intakes of nutrients have been established for a few dozen constituents. But we are learning today that there are hundreds--some at very low levels--that are active in the body.

Recommended intakes of nutrients will become more specific based on the different needs. We know today that men, women, nursing mothers, infants, and the elderly have different nutritional needs. We are learning to be much more precise about what constitutes "nutrition" for different groups of people. Research is providing a sound scientific basis for nutritional decisions which will contribute to a more healthy lifestyle for individuals. Preventive measures based on sound nutrition should reduce health care costs for families. The nutritional needs of the elderly, pregnant and lactating women, and infants and children are receiving more attention. But we don't have all the tools we need--our knowledge of what nutrients are needed and how they interact at different life stages in different population groups is not sufficient. On the opposite side is finding out what foods contain what levels of those essential nutrients.

A 1992 study of a group of children on a diet typical of undernourished children showed convincing evidence that a lack of adequate dietary zinc impairs the ability of vitamin A to fully carry out its function in the body. Dietary supplementation was found to increase blood levels of the two nutrients and improve night vision.

What are the dietary needs of adults? Recommendations on dietary energy requirements form the basis for determining the amount of food aid given to poor families and for assessing the adequacy of the food supply in different communities. Research findings indicate that present recommendations substantially underestimate usual energy needs and that current Recommended Dietary Allowances underestimate usual energy requirements for physical activity.

Recent studies at USDA Centers indicate that half as many noninstitutionalized persons who consumed lower levels of vitamin C were found to have increased blood pressure compared to those whose intake of the vitamin was relatively high. It still must be determined whether other components of a low vitamin C diet affect blood pressure.

Other studies indicate that individuals with cataracts were found to have lower intakes of folic acid and vitamin B_6 than those of comparable age without visual impairment.

To address these and other issues, the ARS conducts research on human nutritional requirements at five major nutrition research centers.

The oldest center is located at Beltsville, Maryland and conducts research on all classes of nutrients and their interactions. It is particularly noted for studies of energy metabolism and body compositions. Controlled feeding studies using 20 to 100 volunteers, men and women with diverse racial and ethnic backgrounds, are conducted to determine effects of nutrients on indicators of heart disease, cancer, obesity, and other nutritionally related conditions. The Beltsville Center's Nutrient Composition Laboratory is the historic leader in developing methods for nutrient analyses of food. Their work is particularly urgent now in relation to needs for nutrient labeling of processed foods. A recent significant contribution on food composition, related to the concerns of the National Cancer Institute, is publication of the carotenoid content of foods. Vitamin and mineral bioavailability from foods as well as their interactions with different kinds of carbohydrate in the diet are important in defining ways to improve food composition by genetics and processing to best meet peoples' needs. ARS scientists work with medical scientists at Georgetown University, Johns Hopkins University, University of Maryland, and other institutions.

The Human Nutrition Research Center at Grand Forks, North Dakota, is particularly focused on mineral needs. Recent studies have shown the importance of fatty acids of beef, not just the heme, in facilitating iron absorption from diets that meet recommended intakes of fiber. The scientists at the Grand Forks Center are internationally recognized for their discoveries in ultratrace element needs. They are leaders in research on human copper requirements, a trace mineral prevalent in nuts, whole grains, and beans. The scientists have done pioneering work on the relationship of mineral needs to neurological and behavioral functions. The Grand Forks Center works with faculty of the University of North Dakota Medical School.

The Human Nutrition Research Center on Aging at Tufts University, College of Medicine, in Boston, Massachusetts, is the world leader in nutritional needs of the elderly. The Boston Center is operated by contract with Tufts University and has active interaction with many of the medical faculty at the University. You will be hearing from Dr. Rosenberg today. Major studies of nutrient requirements to maintain a healthy immune system, cardiovascular function, resistance to osteoporosis, and visual function are ongoing. We recently expanded research on neurological function in relation to nutrition and aging. Our studies of vitamin B_{12}, folic acid, and antioxidant nutrient requirements during aging are leading to better understanding of needs for delaying some degenerative processes.

The Children's Nutrition Research Center (CNRC) in Houston, Texas, associated with the Baylor College of Medicine is also internationally unique. Dr. Nichols will be addressing the Subcommittee and I'm sure he would concur the research being conducted at the Houston Center is unique and exciting. The studies of nutrient needs for growth of normal and preterm infants have led to better nutritional support both in relation to breast feeding and formula supplements. We have recently begun an unprecedented study of nutrient needs and growth processes of teenage mothers. The Center has equipment not available anywhere else to monitor growth of organs, muscle, bones and fat both during pregnancy and of the infants and nursing mothers. These studies, especially in relation to calcium, will be the first to enable us to identify predictors of bone maturation and possible later needs for bone maintenance throughout life.

The Western Human Nutrition Research Center (WHNRC) in San Francisco, California, is especially dedicated to devising and testing methods to monitor nutritional status. The scientists work in close cooperation with many scientists in the University of California system. Joint projects between WHNRC and University of California, Berkeley, the University of California, Los Angeles, and the University of California, Davis are active. WHNRC efforts are currently focused on defining an optimum combination of diet restriction and physical activity to achieve sensible weight loss, and on exploring the relationship between eating behavior, body composition, nutritional status and risk factors associated with chronic disease.

Our human nutrition research scientists cooperate with each other in many working groups. They also work to assist the Food and Nutrition Service, such as recently in relation to school lunch needs. The CNRC has an Extension Food and Nutrition Specialist co-located to expedite the incorporation of new knowledge into education programs. We work with different institutes of the National Institutes of Health: heart, cancer, alcohol. We have very active cooperation with the Human

Nutrition Information Service (HNIS) and the National Center for Health Statistics in their food consumption and nutritional status survey responsibilities. For example, ARS research was essential to the development of dietary quidelines jointly issued by HNIS and HHS.

Dr. Johnsrud mentioned some of the existing coordinating mechanisms. I personally serve as a USDA/ARS representative on seven of those inter- and intra-agency committees and task forces--the purposes of which are to coordinate nutrition research activities.

Nutrition research is an iterative, interactive process dealing with the whole body--fetus to centenarian--within different social contexts. A pressing research need across all areas of nutrition concerns the consequences of inadequate, inappropriate, or excessive nutrient intake. Another is a much greater understanding of all the many facets of nutritional problems associated with poverty. Research to define nutrient-gene interactions so that the susceptible individual can be identified is badly needed. All aspects of nutrition in neurodevelopment and cognitive ability, as well as nutrition and development of the gastrointestinal tract, are virtually unexplored. Research also is needed to identify the pediatric antecedents of adult disease--e.g., do obesity, heart disease, and cancer have their origins in childhood and should dietary intervention start early in life? These are some of the research issues of vital importance to national health care costs and the vitality of the nation.

Research is not done for knowledge alone; that knowledge must be available to those who need it. Research results are disseminated in a variety of ways. They are made available to the Extension Service. They are discussed at scientific symposia and published in journals. ARS provides information to the popular press, radio, and television. We recognize that the wealth of facts and information can be confusing and, at times, conflicting, but we in the research community are constantly striving to provide updated validated research results for communication to industry and the consuming public. Good data and good communication will assist us in making informed choices from a nutritious food supply that promote a healthier population--from birth to our senior years.

STATEMENT OF
DR. MELVIN M. MATHIAS
HUMAN NUTRITION SCIENTIST
COOPERATIVE STATE RESEARCH SERVICE
U.S. DEPARTMENT OF AGRICULTURE
BEFORE THE
SUBCOMMITTEE ON DEPARTMENT OPERATIONS AND NUTRITION
COMMITTEE ON AGRICULTURE
U.S. HOUSE OF REPRESENTATIVES

JULY 15, 1993

Mr. Chairman and Members of the Subcommittee, I am Dr. Melvin M. Mathias, Human Nutrition Program Scientist for the Department of Agriculture's (USDA) Cooperative State Research Service (CSRS). I appreciate the opportunity to submit this statement on behalf of CSRS to describe the agency's program, working relationships, and accomplishments in human nutrition.

CSRS supports the equivalent of 175 full-time scientists conducting about 500 research projects at universities and laboratories. Much of this work is carried out by research, teaching, and extension faculty at the Nation's 74 land-grant universities. These universities bring together nutritionists, food technologists, economists, and social and behavioral scientists to address the complex issues of nutritional quality of foods and consumer food choice. CSRS supports nutritional research through its partnership programs including Hatch and Evans-Allen funding, as well as special and competitive grants, and graduate fellowships. On average, these funds are leveraged at least three-fold by matching funds; each dollar of Federal funding brings with it at least three dollars from other sources to do this research.

Graduate and post-doctoral students receive nutrition training undergirded by a understanding of the food system from production through consumption and its effects on human diet and health. The CSRS uses institutional and agency peer reviews to evaluate the quality of research and graduate training programs. Programs sponsored by CSRS tap talented scientists from a diverse array of colleges of agriculture, human ecology, and medicine at public and private institutions.

One important program--the nutrition, food quality and health program of the National Research Initiative Competitive Grants Program (NRI)--is designed specifically to stimulate new and innovative research. It has been endorsed broadly by many professional organizations as well as consumer groups, food industry representatives, educators, and service providers. Research emphasizes: (1) bioavailability of nutrients; (2) the interrelationship of nutrients; (3) nutrient requirements of healthy individuals across all age groups; (4) mechanisms underlying the relationship between diet and health maintenance, such as the effect of nutrients on the immune system; (5) the cellular and molecular mechanisms underlying nutrient requirements, including the modulation of gene expression by nutrients; and (6) food consumer behavior, including identifying and developing methods to overcome obstacles to adopting healthful food habits, to convey knowledge to target audiences, and to ascertain factors that affect food choices.

Through the past several years, CSRS-supported research has led to important accomplishments in several areas:

o **Bioavailability of Vitamins**

The degree to which food nutrients are available for absorption and utilization, termed bioavailability, is a critical issue for estimating nutrient allowances and labeling of foods. Nutrients are rarely found in foods as a single compound. Most frequently they are bound to numerous enhancing or inhibitory factors. Folic acid is an excellent example of a vitamin available in several forms in food, and its bioavailability is inhibited by several components of food. Research done in land-grant universities indicates that a 50% bioavailability factor can be assumed for folic acid. This specific information will be critical as the Public Health Service develops and implements a practical approach to preventing neural tube defects.

o **Food behavior of adolescents and young adults**

Researchers working with adolescents showed that while the teens were developing very strong opinions about food, nutrition, body image, and health, their parents still had a great deal of control over their food intake. They then addressed what happens to teens when they enter the transitional years of young adulthood (18-24 years). There is virtually no information about the effect of nutrition and health concerns on food intake by this consumer group. Focus panel research has shown that 18-24 year olds feel quite pressed for time and are very concerned about food costs. Fast food is their staple because it is fast, cheap, and familiar. At the same time, they worry about nutrition--mainly dietary fat, cholesterol, salt, and sugar, but also pesticides, additives, and other chemicals. The next step in the project will be to determine the factors most influencing consumption of specific food items, such as beef, cheese, and various fruits and vegetables. The enhanced understanding of what motivates the food choices of this age group will be used by Extension and other health professionals to develop appropriate and effective programs.

o **Nutritional status of rural elderly in the South**

The overall objective of this regional research project was to determine the quality of life of elderly persons in the rural South by assessing their actual and perceived nutrition, clothing, and housing status. A large team of researchers from the historically Black 1890 land-grant universities made several findings. They showed that medical costs are the most serious concern, followed by concerns for energy, housing and food. They confirmed that a high percentage of monthly income was spent on food; the highest reported was 35% among black females. They found that participation rates in community service programs, including senior centers and home delivered meals, were very low. The study concluded that community services need to be more effective in reaching rural elders. How best to do this is the topic of their current research project.

o **Identification and Isolation of Protective Compounds in Foods**

More than forty foods have been identified as having cancer-preventive properties over the last decade. Fourteen classes of phytochemicals, the chemical components of plants, possess cancer-preventive properties. Phytochemicals may also play a role in preventing other chronic diseases, such as coronary heart disease and osteoporosis. For example, monoterpenes, tocotrienols, phenols, and saponins in plants have been shown to have beneficial effects on the cardiovascular system. Quercetin inhibits antigen-induced human white blood cell responses. USDA and university scientists are part of a major effort with National Cancer Institute to develop a more complete understanding of how these compounds act and interact with other active agents in food.

o Low-fat Meat Products

In response to consumer demands, USDA and university meat scientists have been instrumental in outlining the principles and developing the technologies to formulate acceptable low-fat meat products. Developing palatable products has been challenging, but food processors now employ carageenans, soy proteins, modified food starches, and oat bran to bind fat and water in the formulation of low-fat meat products while retaining the sensory properties usually associated with high-fat products. Some of these innovative low-fat products can be found in fast-food restaurants, grocery shelves, and school lunch programs.

Priority research needs. I want to highlight three pressing, priority needs in nutrition research:

First, expand the human nutrition component of the National Research Initiative's Competitive Grants Program. USDA and the Department of Health and Human Services play key roles in meeting the 21 nutrition goals outlined in the Federal government's **Healthy People 2000** objectives. The list of researchable issues is long. The President's FY 1994 budget addresses this need by proposing a significant increase for the National Research Initiative (NRI) and, more specifically, human nutrition research funded through the NRI.

Human nutrition research supported through CSRS competitive and cooperative programs will make significant contributions to this interagency effort. For example, we have instituted new research to expand our understanding of food consumer behavior, including ways to overcome obstacles to consumer adoption of healthful food habits, convey nutrition information to target audiences, and ascertain factors which affect food choices. We continue to fund research which applies new techniques in molecular biology to expand our understanding of nutrient requirements and the role of nutrition in optimal health.

Second, we need to more thoroughly document the consequences of nutrition research and education on the health and well-being of citizens. We don't know enough yet about the full impact of nutrition research and outreach on human health. We have data from studies of the Expanded Food and Nutrition Education Program (EFNEP) and the Special Supplemental Food Program for Women, Infants, and Children (WIC) which suggest that nutrition education improves child and maternal health and decreases spending for medical care. A full assessment of the cost-effectiveness of nutrition efforts will require multidisciplinary analyses.

Third, expand human nutrition training. Training of nutritionists in the continuum from food systems to molecular biology to public health is critical to accomplishing the Healthy People 2000 objectives. Land-Grant Universities provide the intellectual environment through complementary research and extension activities in the range of disciplines relevant to nutrition. The capacity-building, fellowships, and strengthening programs are designed to support recruitment, education, and training of nutrition professionals.

Mr. Chairman, when totalled, the scientists in ARS, CSRS, and the Extension Service and the university-based system make a powerful team dedicated to improving the nutritional needs of consumers.

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